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SIR JOHN WILLIAMS, BART., M.D., F.R.C.P.

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THE
FAMILY PHYSICIAN

A Manual of Domestic Medicine

NEW AND ENLARGED EDITION

VOL. I

CASSELL AND COMPANY, LIMITED

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SPECIAL NOTICE.

IN this edition of THE FAMILY PHYSICIAN the Publishers have still further added to the value of the work by including six beautifully printed **Coloured Plates**, the subjects of which are of practical interest to the readers. Part 1 therefore contains, as an extra plate, a striking double-page illustration, in colours, showing the Anatomy and Principal Organs of the Human Body ; followed, in Part 2, by a series of microscopic enlargements of the Bacteria present in various diseases. The extra plates for Parts 3, 6, 8, and 10 graphically depict Poisonous and Edible Fungi, as well as the various British Poisonous Plants—objects of almost everyday life, but of which, judging from the accidents so frequently reported in the Press, far too many people are absolutely ignorant.

In Volumes the plates will be bound up as follows :—

- Vol. 1, BACTERIA.
- „ 2, POISONOUS AND EDIBLE FUNGI.
- „ 3, POISONOUS PLANTS, Plates I., II.
- „ 4, PHYSIOLOGY.

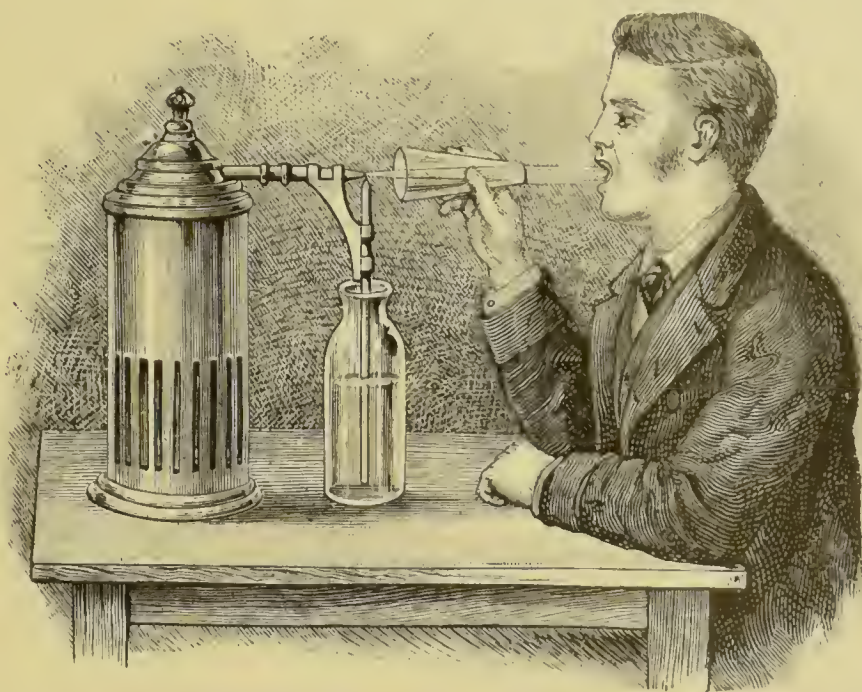


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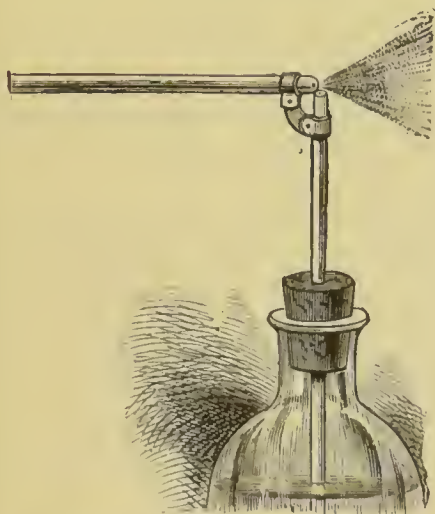
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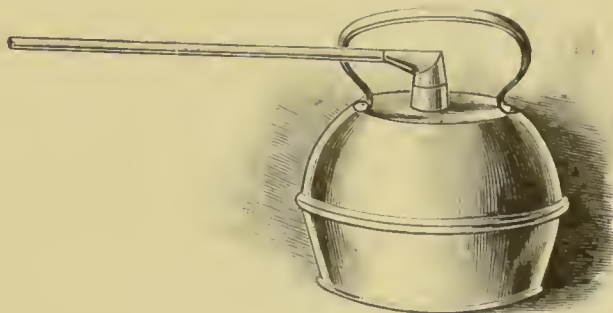
A CLINICAL THERMOMETER.



SEIGLE'S STEAM SPRAY INHALER.



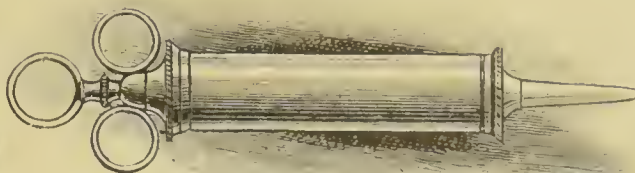
ATOMISER.



BRONCHITIS KETTLE.



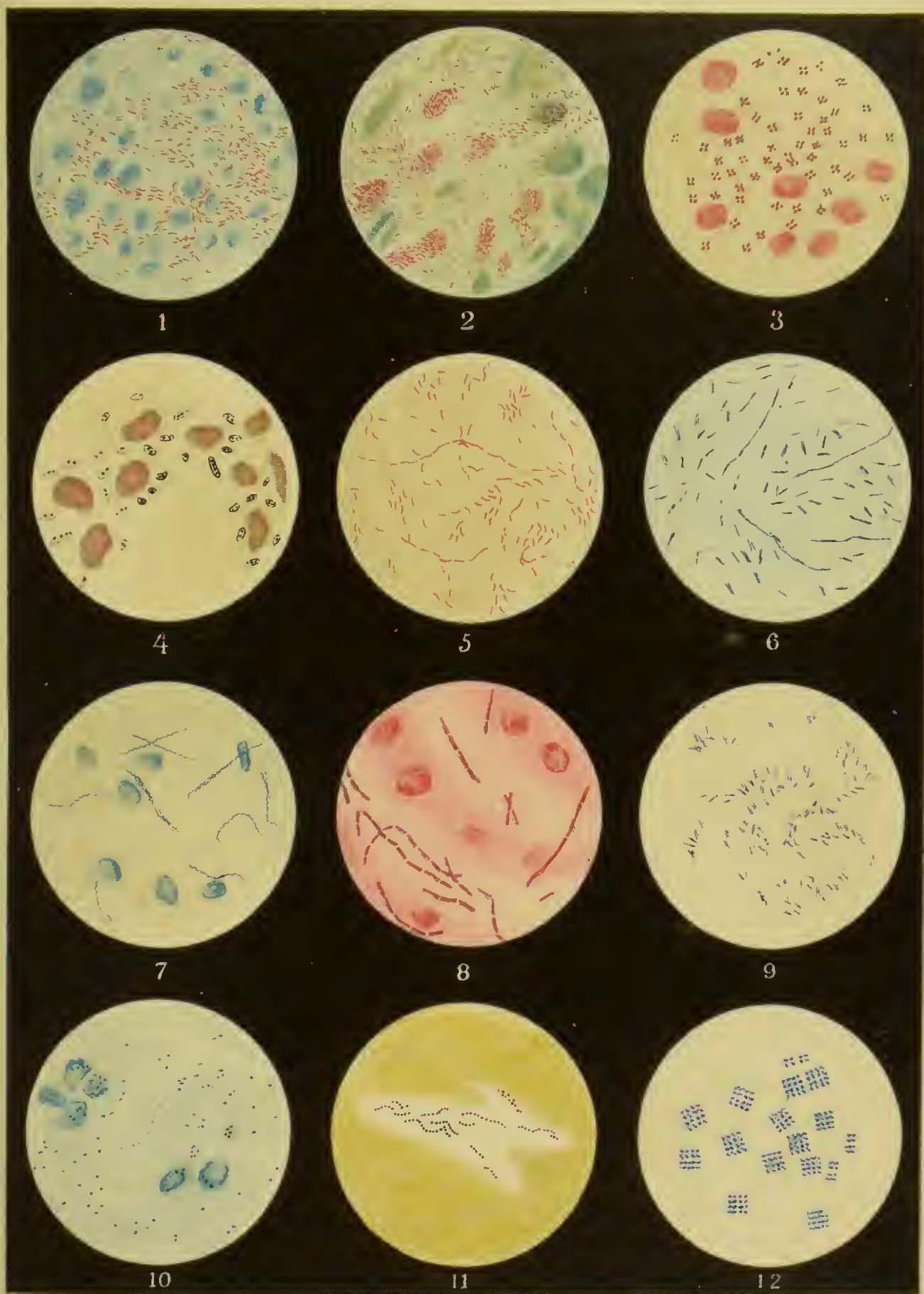
TUBE OF TABLOIDS.



EAR SYRINGE.

MEDICAL APPLIANCES.



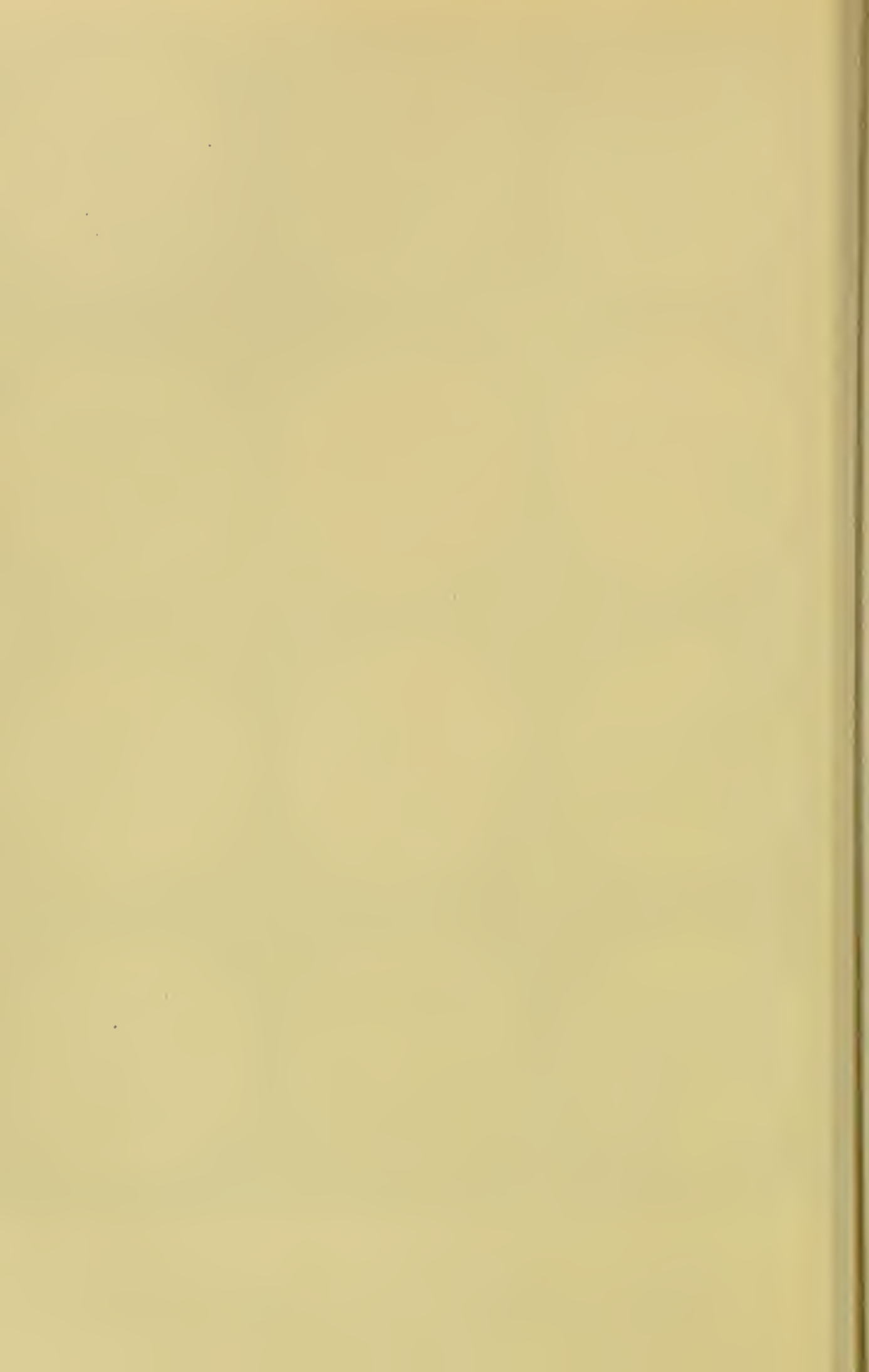


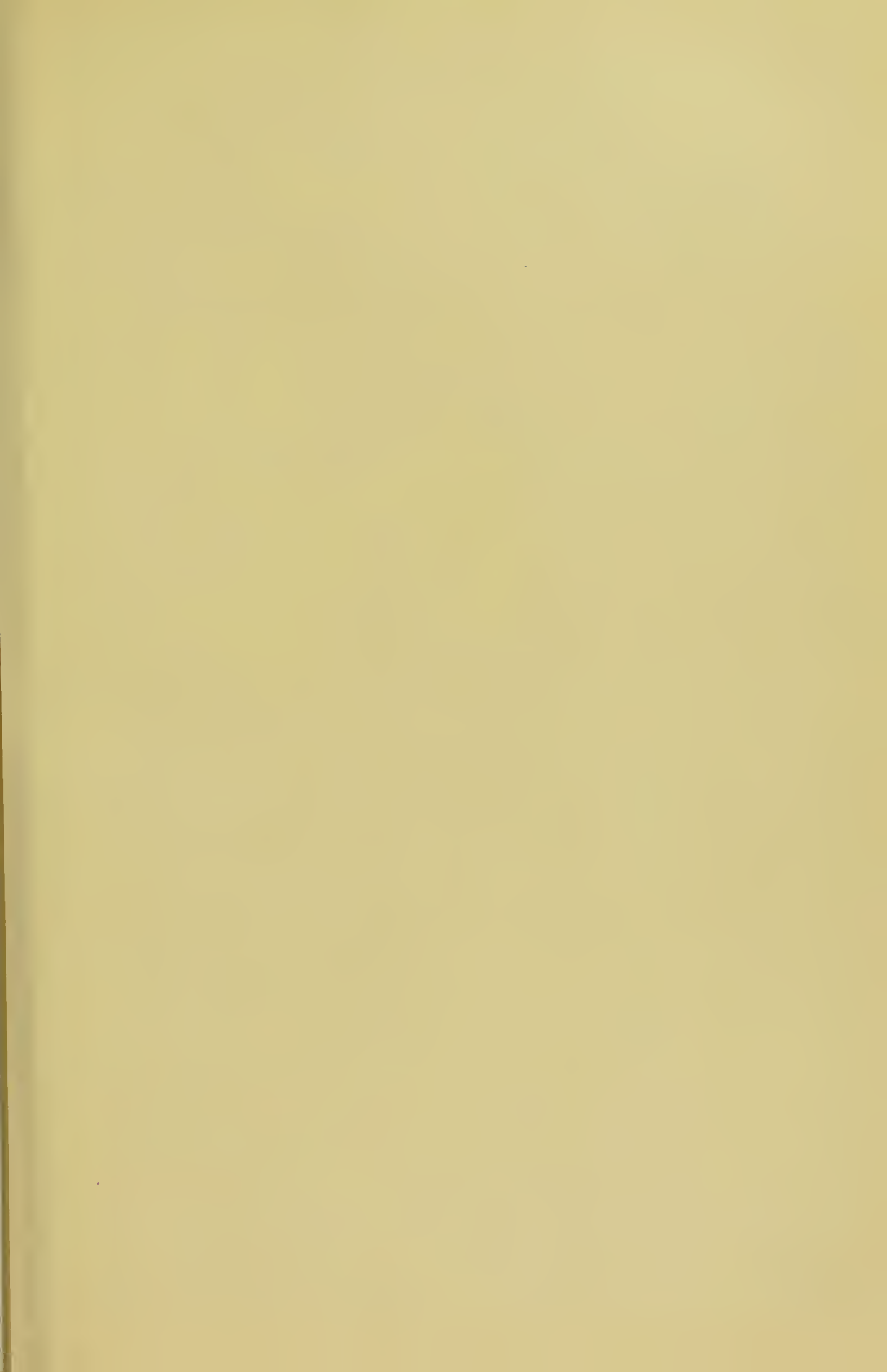
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BACTERIA.

1. Tubercle bacillus. 2. Bacillus of leprosy. 3. Micrococcus tetragenus. 4. Pneumoniae diplococcus (Friedlander). 5. Cholera comma bacillus. 6. Typhoid bacillus. 7. Relapsing fever spirillum. 8. Anthrax bacillus. 9. Glanders cocci. 10. Micrococci in pus. 11. Erysipelas bacillus. 12. Sarcina.

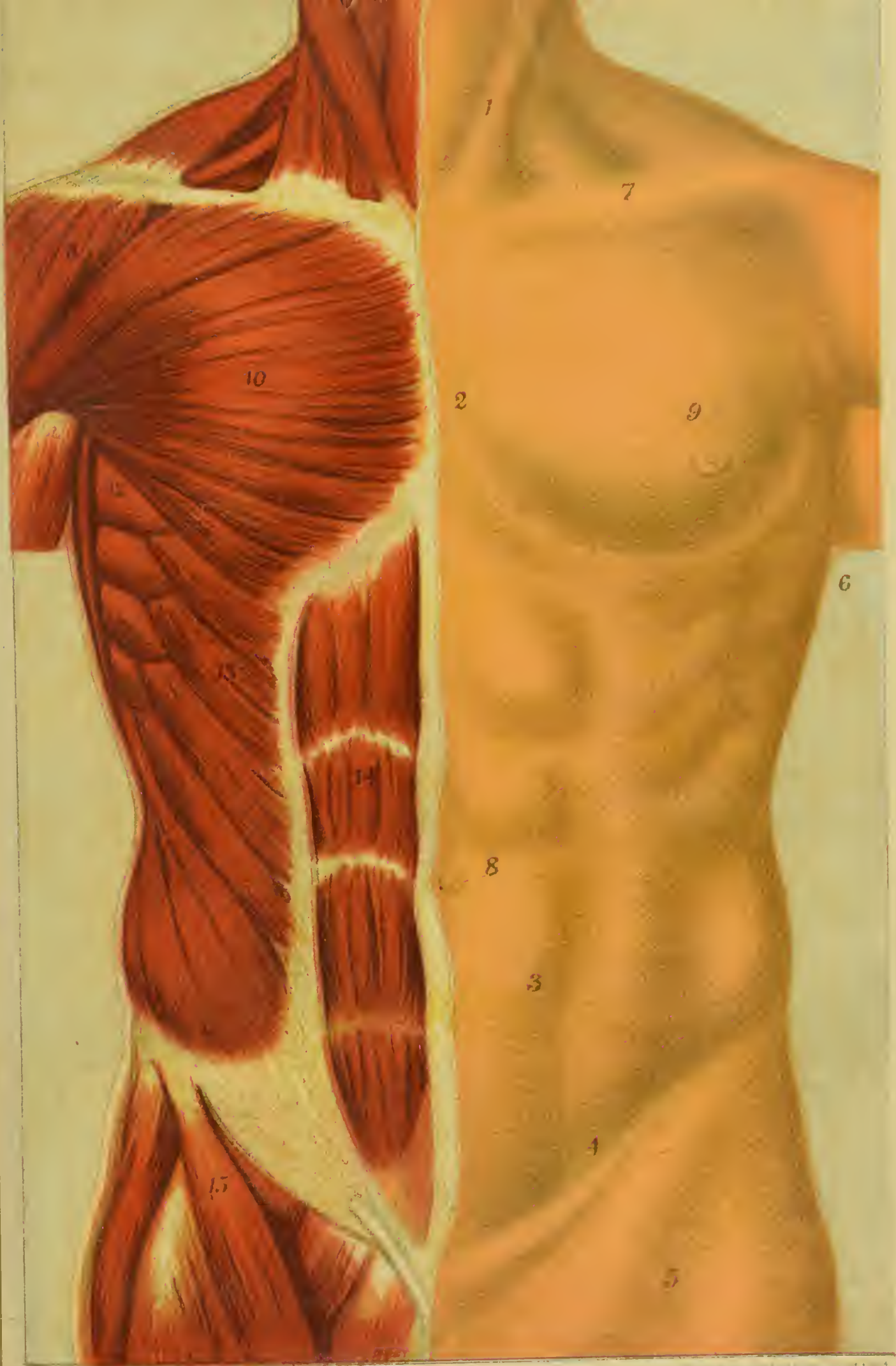
(1, 2, 3, 5, 6, 8, 10, 11, magnified 1,000 times ; 4, 7, 9, 12, 550 times.)



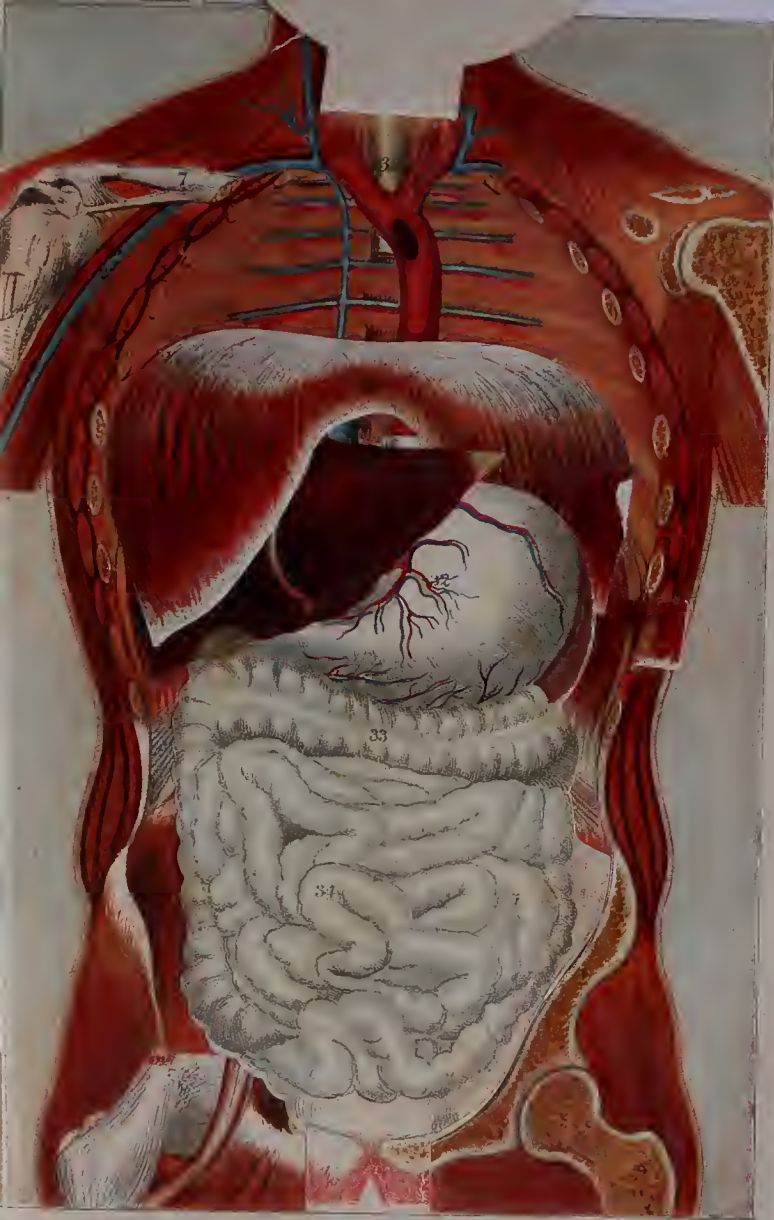


THE HUMAN BODY.

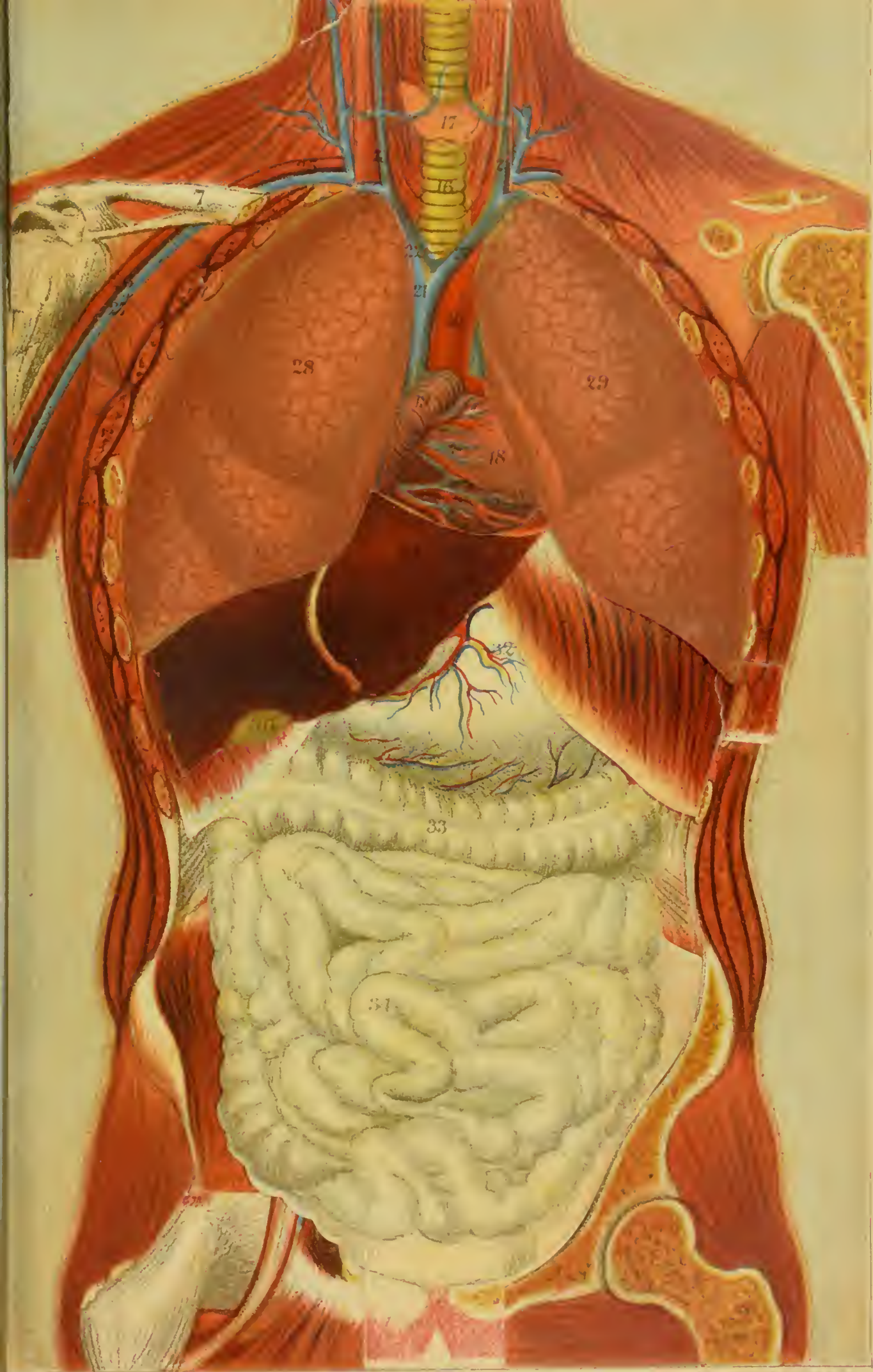
1. The neck.
2. The chest.
3. The abdomen.
4. The groin.
5. The thigh.
6. The axilla or armpit
7. The collar-bone.
8. The navel or umbilicus.
9. The nipple.
10. The great pectoral muscle.
11. The deltoid muscle.
12. The serratus magnus muscle.
13. The external oblique muscle of the abdomen
14. The rectus muscle.
15. The sartorius muscle.
16. The trachea or wind-pipe.
17. The thyroid body.
18. The right ventricle of the heart.
19. The right auricle of the heart.
20. The arch of the aorta.
21. The vena cava superior.
22. The innominate veins.
23. The internal jugular vein.
24. The carotid arteries.
25. The subclavian artery.
26. The axillary artery.
27. The axillary vein.
28. The right lung.
29. The left lung.
30. The diaphragm or midriff.
31. The liver.
32. The stomach.
33. The large intestine.
34. The small intestine.
35. The œsophagus or gullet.
36. The gall-bladder.
37. The ascending aorta.
38. The vena cava inferior.
39. The right kidney.
40. The left kidney in section.
41. The right suprarenal capsule.
42. The left suprarenal capsule.
43. The right ureter
44. The left ureter.
45. The bladder.



THE HUMAN BODY



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THE HUMAN BODY.



out again by appropriate remedies. You often hear patients, and even doctors, talk of "driving the disease off through the kidneys," or "sweating it out of him." Many people seem to regard disease as being something which has distinct physical properties, something that can be felt and seen. It is common enough to hear people say that "he threw the disease off his stomach, just for all the world like a lump of currant jelly," or for them to use some expression showing equally conclusively that they regard disease as having a distinct entity.

As has been very truly said, disease under all circumstances and to all degrees, is the lowering of life, and even in its most trivial forms it must be regarded as the "shadow of death." Some diseases are, however, of very much greater moment than others. A corn is a disease, and so is a cancer, but they differ so widely in their effects on the constitution, that we seldom recognise the fact that they are both expressions of a damaged existence.

We estimate the importance of a disease by the power that it possesses of limiting life in its utility, its enjoyment, or its duration. Some diseases have a tendency to cut short life suddenly, as, for example, certain diseases of the heart, and that frightful malady known as angina pectoris, or suffocative breast pang. Then other diseases, although they never arrest life suddenly, have a tendency to shorten its duration. Cancer is probably the best example of this class. Consumption not only shortens life, but sometimes, when copious bleeding from the lungs ensues, kills immediately. Then there are certain other diseases which, although they do not cut short life suddenly, or limit its duration, make it almost useless. Thus many a sufferer from chronic bronchitis or winter cough is afraid to go out in the open air on a cold day, and an asthmatic is completely helpless as long as his attack lasts. Epilepsy is a disease which prevents the unfortunate sufferer from following many occupations. A man is, we will suppose, a carman, or a porter on a railway, and he has a fit. He is forthwith discharged: there is no help for it, the safety of others demands it. The fit may occur at any time and without a moment's warning, and it is impossible for him to obtain another place, for every one is afraid to employ him. The result is that he rapidly becomes reduced to a condition of poverty, and ultimately drifts into the workhouse. These cases are by no means uncommon, and several have come under our immediate observation. Here the disease has no tendency to shorten life, and is of importance simply because it prevents the sufferer from following his occupation, and makes him a burden on the working portion of the community. Then again, there are other complaints which are of importance simply because they interfere with the enjoyment of life. A man becomes hypochondriacal;

he has nothing the matter with him, but he fancies he is suffering from all kinds of diseases. His life is a misery to him, and he is a nuisance to every one else. His condition in no way interferes with his capability of earning a livelihood, and he may perform his duties in the most exemplary manner, but his very existence is hateful to him. We estimate the importance of any particular disease by our power of placing it under one or other of the categories we have mentioned.

The number of diseases from which a man may suffer in the course of a lifetime is very great, and, indeed, if we include all their differences in kind and degree, is scarcely calculable. These diseases are, of course, recognised by distinctive names. The nomenclature of diseases is, to say the least of it, a very mixed one. Some time ago an attempt was made to introduce the binomial system into medicine, but the difficulties were insurmountable, and it had to be abandoned. The proposition was to give every disease a generic and a specific name, so as to make it assimilate with the nomenclature adopted in botany and zoology. The attempt, as we have said, was a failure, and on the whole we are not sorry for it, for we get along very well with our old-fashioned names and terms, many of which have been in use for centuries. It is very curious to notice in what diverse fashions diseases have been named. Some are called after a prominent symptom—such, for example, as whooping-cough and writer's cramp. Some are named after the rash which they present, as nettle-rash, small-pox, scarlet fever, and so on. Other names indicate that the disease is characterised by a certain change occurring in some particular organ or region of the body; thus we speak of bronchitis, which is inflammation of the bronchial tubes, and of peritonitis or inflammation of the peritoneum, the termination *-itis* in these cases signifying inflammation. Then again, the names of certain diseases end in *-æmia*, as, for example, anæmia, leucocythæmia, pyæmia, and so on, the termination in these cases signifying that it is the blood which is primarily at fault. This is undoubtedly a bad way of naming a complaint, for in many other diseases, such as small-pox and scarlet fever, there can be no doubt that the blood is essentially affected. It occasionally happens that a disease is named after the physician who first recognised it, or who devoted special attention to the elucidation of its nature and treatment, and we have familiar examples of this in Bright's disease and Addison's disease.

The terms "functional," and "structural" or "organic," are so frequently employed in connection with disease that it is absolutely necessary that we should arrive at some definite idea as to what we mean by them. We will not attempt any formal definition, but will endeavour to convey our

meaning by one or two simple illustrations. In ulcer of the stomach and in cancer of the stomach a certain change takes place in the organ in question, which is at once recognised. There is something there which we can see and which we can feel. This is something tangible, something having distinct physical properties, something we can point to and say, this is the cause of death. Now this is what we call organic disease. But, on the other hand, a man may have suffered for many years from indigestion and marked derangement of the stomach, and yet after death the most practised anatomist, with all the means and appliances of modern science at his command, may fail to discover any change to account for them. This is what we call functional disease. To employ a very rough simile we may say that in the one case our engine is rusty and won't work, and in the other the piston is broken. As a rule an organic disease is of more importance, and is more likely to interfere with the duration of life than a purely functional one, but it is not always so. It may be more trouble to take the whole of an apparatus to pieces and clean it, than simply to restore one part that happens to have suffered.

Then again we speak of "general" or "constitutional," and "local" disease, but this is not a strictly accurate division. For example, we know that pneumonia is inflammation of the lungs, but it is absurd to call this a purely local disease. Look at your patient; his face is flushed, his tongue is furred, his skin is hot, his pulse is quick, and, in fact, he is ill all over. It is not only the lung that is at fault, but the whole body is suffering. You must treat the man, and not the lung. Doctors too often forget that they have to treat the patient, and not the disease. Now take the case of gout. No one supposes for a moment that this is a local disease. No one would maintain that if we were to cut off the patient's big toe we should relieve him of his pain, or cure him of his malady. And so it is with many complaints that are supposed to be local. The local signs or symptoms are simply a manifestation of a general constitutional disturbance. The whole brunt of the attack, it is true, often falls upon one particular part, but if that part were not there it would assuredly display itself in some other region.

One of the greatest advances that practical medicine has made during the last quarter of a century is the recognition of the fact that you cannot treat a local disease without reference to the constitution of the patient. For example, in bronchitis in a child both the prognosis and treatment would be greatly modified by a knowledge of the fact that the little one came of a consumptive stock, or was the subject of rickets. Again, in Bright's disease our opinion would be influenced if we learnt that the

patient had suffered from gout or syphilis. So in regard to many brain diseases, for the successful treatment of which a knowledge of the constitution is essential.

Of constitutional diseases we recognise the fact that some make their entrance into the system from without, as, for example, scarlet fever, measles, and chicken-pox, whilst others cannot be traced to external poisonous influences. A man has an attack of rheumatism or gout, but we never suppose that he has caught it of any one, but say that it is something peculiar to his constitution, either hereditary or acquired. The so-called local disease we classify according to the organ primarily at fault. Thus we speak of diseases of the nervous system, of diseases of circulation, respiration, and so on. Then these may be further subdivided; for example, in nervous diseases we speak of affections of the brain, of the spinal cord, and of the nerves.

We now pass on to the consideration of the "etiology" or causation of disease. Sometimes it is quite easy to discover the cause of a malady, or of any particular attack, and sometimes it is very difficult and well-nigh impossible. Let us take a very simple case, where the cause of the disease is readily recognisable. A child is brought into a room where some one is ill with scarlet fever, and after a certain interval the disease makes its appearance and runs its usual course. Here we have no hesitation in saying that the cause of the fever was contagion—the child caught it. But it must be remembered that if half a dozen children had been taken into the sick-room, they in all probability would not all have caught it, some would have escaped, though they had never had it before, and were equally exposed to the infection. This is quite in accordance with our general experience, for we know that there are certain people or certain constitutions apparently insusceptible to certain poisons. There are people who have been vaccinated over and over again, but who "never take," however often it may be tried, or however varied may be the source from which the lymph is obtained. Then, again, physicians know that among the students in the fever-wards the slightest exposure will in certain persons ensure an attack, whilst others, even more diligent in their attendance on the sick, escape altogether. There is even in some families a certain proclivity to fever, of which probably most of us have met with examples, whilst others escape from even the closest exposure to concentrated contagion. How do we account for this? What is the explanation of it? We don't know. All we can say is that certain people are "predisposed" to certain kinds of disease, whilst others are indisposed, or not predisposed. When a person has already suffered from a fever, we know that he is "protected" from a

second attack, or no longer predisposed to take it again; but this absence of predisposition is undoubtedly present in many instances where there has been no previous attack. These constitutional peculiarities, if we may so term them, are not unknown in other departments of nature. On some sunny slope, well drained, and well exposed to wind and rain, uniformly cultivated and manured, sown with the same seed on the same day and by the same hands, we find inequality of produce; the fair expanse is marred by some one spot where the crop is dwarfed, insufficient, or altogether absent. We cannot account for this, for it may occur at some spot where on former years there has been from the same materials of labour and seed an abundant result, nay more, where next year or a year or two later there may be, under identical circumstances, an exceptionally fine crop. From this it would appear that there must be something more than a prepared soil and healthy seed, something more than an intense contagion and direct exposure to its influence, and this something we call "susceptibility or predisposition."

In many instances it is very difficult to say what the cause of a disease has been. For example, a child is attacked with St. Vitus's dance; there has been no previous illness, we cannot learn that the child has been frightened, and we are absolutely in the dark as to why those peculiar symptoms should have made their appearance.

Then, again, the same cause is in different people often followed by very different results. For example, half a dozen people partake of an indigestible meal, one of them is none the worse for it, a second suffers from indigestion, a third has a fit, a fourth gets an attack of gout, a fifth has an attack of asthma, whilst the sixth has diarrhœa. Here the exciting cause, the indigestible meal, is the same in all, but the results are widely different, and we say that this depends upon the constitution. We recognise the fact that certain people are liable to suffer from certain diseases—in other words, they are subject to them, and anything that throws them off their equilibrium is likely to induce an attack of the disease to which they are "predisposed."

We must now consider briefly what are the predisposing causes of disease. Some people are hereditarily predisposed to certain complaints. The son of a gouty parent is very likely to become gouty unless he specially guards against his predisposition by strictly abstemious habits. Cancer is more or less hereditary, and so is consumption. That consumption may be transmitted from parent to child is one of the best-established facts in medicine. The extreme frequency of consumption in some circumscribed country districts is, in part at least, explicable

by the frequency of intermarriage amongst persons living in such districts; and, conversely, the exemption of particular circumscribed districts from this disease is in part due to the same cause. In the one case, from some special circumstances, consumption has been introduced into the district, and then spread in it from frequent intermarrying. In the other case, the freedom of the district from the disease at any given time is the cause of its continued freedom. Intermarriage of the inhabitants, the disease being present, spreads it far and wide; intermarriage of the inhabitants, the disease being absent, prevents its introduction. This circumstance has not been sufficiently recognised in estimating the causes of the relative frequency of consumption in different localities.

Syphilis, as we all know, is communicated by the parent to his offspring, and a frightful legacy it is. The mystery of original sin, the punishment "to the third and fourth generation," are paralleled and vindicated by the observations of the physiologist. On the other hand, certain diseases are not in the slightest degree hereditary. A man may suffer for years from most distressing dyspepsia, and yet his children may exhibit no predisposition to stomach disturbance. Why certain diseases should be transmitted and others not we do not at all know. We all recognise the fact that certain conditions of the body are transmissible, that a son may exhibit, not only the features, but the tone of voice, and even the very walk of one of his parents. Hereditary transmission enters into the moral as well as into the physical order of the world. It is common enough to hear it said of a man, that he is a "regular chip of the old block," and we all believe more or less in family likenesses, and that certain peculiarities of feature run in families. We say that a boy has "his father's nose," or "his mother's eyes," as the case may be.

Then, again, we know that features, form, frame, peculiarity of constitution, susceptibility to certain agents, not to speak of character, mental and moral, the passions and the intellect, are often derived from progenitors many steps upwards in the ancestral tree. Individually we are combinations of many ancestors. The actual traits of the parents may or may not be seen in their offspring, and it is more common to find that one or two only are represented in each child. The remainder are doubtless derived from some ancestor long forgotten, whose intellectual powers or defects, infirmities or vigour of body, whose faults and follies, whose brilliant powers or miserable failings, may be reflected in a remote descendant, as he himself has derived them from some

distant ancestor. We are accustomed to say that gout may skip a generation, and why may not it skip four or five? Hereditary tendency is probably of far more remote origin than is commonly supposed, and is a reflection of the tendencies of untold numbers who have preceded us in the family tree. It is a frightful thing thus to look back on the sins of our forefathers and to recognise the transmitted punishment, but it is in accordance with other facts of moral origin and highest dictation.

It is sometimes asserted that when people live together, or are intimately associated, they grow like each other, and we know that schoolboys are apt to catch any peculiarity of habit or expression of their tutor or schoolmaster. This is undoubtedly the case, but it is a very different thing from heredity. Physical peculiarities acquired accidentally are not transmitted. A man loses a leg, but his children are born with their proper complement. For generations past it has been customary to cut off the ears and tails of certain breeds of dogs, but it has not resulted in the establishment of a race of animals unfurnished with these useful appendages. On the other hand, when by a curious freak of nature a man is born with a supernumerary finger or toe he may transmit this peculiarity to his children. It sometimes happens that children of one sex exhibit an hereditary taint, whilst those of the opposite sex escape it. The boys "take after" the father and the girls after the mother, and a tendency to disease may be more or less powerful as the child resembles one or other parent.

It would seem that certain conditions have a tendency to develop the hereditary taint. Privation, excesses, errors in habits of life, sedentary occupations, the pernicious influence of certain trades, grief, anxiety, and the other wasters of vital power, are undoubtedly important factors. The development of a constitutional predisposition is favoured by those errors of life, those sins against natural laws which we are all of us committing so frequently. To this class belong all excesses which waste the vital powers; undue carefulness and anxiety, over-watching, the exciting race after wealth and distinction, and the ineffectual struggle against poverty. The over-nursed in close and luxurious chambers; the student outstepping his powers on a short Alpine holiday; the sorely-taxed governess, toiling all day and sitting up half the night to enjoy the luxury of solitude and converse with books and absent friends; the scantily-clad lady undergoing, in ill-ventilated rooms, the dangerous excitement of the ball—these are all labouring thoughtlessly

to prepare the way for the development of any latent but hereditary taint to which they may be subject.

Diseases that are hereditary usually make their appearance at a much earlier age than when acquired. Gout, for instance, is extremely rare before the age of twenty, but in cases of marked family predisposition it may be met even in boys at school. The mistake is often made of supposing that because in a certain case a disease is hereditary there is little or nothing to be done for it in the way of treatment. On the contrary, so far from relaxing our efforts to effect a cure, we should treat it all the more promptly and energetically.

Strictly speaking, age cannot be said to constitute a predisposing cause of disease, although it carries with it certain things which may be. We meet with people of all ages who are free from illness and discomfort of any kind. It is not uncommon to hear a man say that he has not had a day's illness for the last forty years. We might conceive the possibility of a person passing from the cradle to the grave without suffering from anything but the most trivial ailments. Practically, such instances are not often met with, for at some point or other in the long course of life, the chain of good succession is broken by a faulty link or an unexpected blow, and then follow one or other of the many ills that make up the miseries of common life and average health.

Although age is not *per se* a predisposing cause of disease, there are certain disorders which are far more common at some periods of life than at others. In infancy there is very little power of resistance, and a very slight disturbing force will serve to upset the equilibrium of health. Infants have but little power of maintaining the bodily temperature, and if exposed to cold suffer much more than adults. Errors of diet readily irritate the delicate mucous membrane of their stomach, and they are especially liable to suffer from diarrhoea. Then, again, the process of teething is often accompanied by convulsions and other signs of marked disturbance of the nervous system. In boyhood there is, on the one hand, the risk of accident resulting from high animal spirit unrestrained by discretion, and on the other the fear of excessive mental labour, as in working for examinations and other objects of early ambition. Later on, when he comes of age, he is anxious about his future prospects, about the profession or business he is about to enter, and for which he is preparing, and there are many temptations of all kinds to which a young man is exposed, often without the power of resisting them. Still a few years later he has a wife and family to

provide for, and realises the fact that the struggle for wealth and honour, and even for very existence, is a hard one. Between forty and fifty he has made his mark or has failed in the attempt; in the former case he relaxes his efforts, takes things easily, and does his best to enjoy the reward he has so dearly won; in the latter case he is crushed, and soured by his want of success, and suffers not only mentally and morally, but also physically. In old age the strong man becomes a child again, and is once more dependent on the kindness and attention of those about him; as at the other extremity of life, he is peculiarly susceptible to cold, and if not properly cared for, his small remnant of vitality is readily extinguished. It will be seen that these circumstances must of necessity exert a powerful influence on the diseases which are incidental to the different periods of life.

Sex can hardly be said to be a predisposing cause of disease, although undoubtedly many diseases occur far more frequently in one sex than the other. It is sometimes said that every disease is common to both men and women, but this is not quite true; for instance, no one would maintain the proposition in the cases of diseases of the womb. Hysteria is almost confined to women, although undoubted cases are occasionally met with in men who have been pulled down by excesses either of work or the reverse. Hypochondriasis, on the other hand, is seldom met with in women, and it would seem almost as if these two complaints had made a compact to respect each other's territory. Clergymen's sore throat is chiefly a man's disease, but ladies who have to speak or sing in public often suffer from a closely analogous complaint.

The nervous, mental, and moral endowments of the two sexes are more or less influenced by social considerations, and the customs and habits of society. Women, as a rule, stay at home, men go out to business; women devote themselves to individuals, men to principles. The woman's life is sedentary, the man's active. In women functional disturbances of the nervous system predominate. How all this would be if the woman went in for a more active life, and the man stayed at home to nurse the baby, we cannot say, but there is no doubt that if women were brought up in a more manly fashion there would be less hysteria. We have no hesitation in saying that as far as their physical well-being is concerned, it would be much better for girls if they were more frequently treated like their brothers. Before the age of thirteen or fourteen, the difference between the sexes is comparatively slight, and many a young lady would be considerably benefited if she

were made to run, and walk, and swim, and row, instead of being prevented from taking healthful exercise and recreation.

It is a curious circumstance that women far more frequently have a second attack of scarlet fever, measles, and other acute diseases than men. It is possibly explicable by the circumstance that they are more frequently brought into intimate contact with children.

One of the commonest predisposing causes of disease is drunkenness, that fierce rage for the slow and sure poison that oversteps every other consideration; that casts aside wife, children, friends, happiness, and station, and hurries its victims madly on to degradation and death. Some are impelled by misfortune and misery to the vice that is ruining them—the failure of worldly expectations, the death of those they loved, the sorrow that slowly consumes, but will not break the heart, drives them to it, and they present the hideous spectacle of madmen dying by their own hands. Others with open eyes plunge into the gulf from which he who once enters never rises more, but sinks deeper and deeper down until recovery is hopeless.

Temperament is not without its influence on disease. We all recognise the existence of different varieties of temperament; even the least observant mentally contrasts the typical nervous, excitable Frenchman with his dull, heavy, phlegmatic Dutch *confrère*. Many temperaments are readily recognisable. First, there is the man with sanguine temperament; he is quick and lively in his manner, has an excitable pulse, a florid skin, a flushed face, eats and digests well, and sleeps quickly. He is generally thought to be predisposed to inflammation, but this is not so in reality, and almost the only thing he is especially likely to suffer from is an accident, the result of his pluck, daring, and impetuosity. Then there is the man of phlegmatic or lymphatic temperament, with his cold hands, pallid skin, and fair complexion. He usually eats well, has a fair amount of ability, and a cool, calm, calculating disposition. He is rather liable to suffer from the effects of cold, and in winter often has chilblains. Next there is the bilious or melancholic individual; he is usually dark, both physically and mentally; he has dark hair, and dark eyebrows, and a sallow complexion. He is a heavy sleeper, and is often languid and tired. He suffers from disturbed digestion, a coated tongue, constipation, and flatulence. He is not by any means a good patient, and when he gets typhus or typhoid fever it is apt to go hard with him. Lastly, there is the nervous man, fidgety, restless, easily excited, easily depressed, up one moment and down the next. He is impulsive, but soon gets tired of his hobby, and

takes up something else. He is usually a short sleeper, and any excitement or anything wrong with his affairs will often keep him awake all night. He is a likely subject for tic and spasm of all kinds, and is on the whole not an unlikely person to become hysterical. These are the chief forms of temperament, but it must be remembered that two or more may be combined in the same individual. Fortunately, we are not all built on one of these four types.

In connection with temperament, we must explain the meaning of "diathesis." It means almost the same as temperament, but is a newer word—being in fact the Greek for "disposition." It is often used vaguely, and without any very definite meaning. When we speak of a man as having the gouty diathesis, we generally intend to convey the idea that he is a middle-aged, full-blooded, red-faced individual, who is likely at some time or other to become the subject of gout. Many doctors make a point of always treating the diathesis. Thus, in the case we have supposed they would always give the patient colchicum, whatever he might complain of.

For the maintenance of health, it is necessary that the body should receive a definite supply of food. When people are below par from defective feeding, they are very liable to contract contagious diseases from the slightest exposure to infection. It is a good practical rule not to go into a room where there is fever on an empty stomach. Army doctors know that if a battle is fought before breakfast, or after a long-sustained fast, the wounded are far more likely to suffer from lock-jaw. It is a good plan to serve out rations before an engagement, if possible; the worst stomach for a fight is an empty stomach. Then, again, in civil life, we constantly find that the over-worked and poorly-fed supply the largest number of cases of hysteria and neuralgia. How frequently neuralgia is met with in half-starved needlewomen! What half these people want is food, not medicine. Even among the middle and upper classes of society there are many people who fail to take enough food, although, it must be confessed, that usually the fault is the other way. Many people do not eat simply because they take little exercise, and have no appetite. Many perforce lead solitary, sedentary lives, and will not eat simply because they are alone, and they are tired of seeing the same things and same kinds of food put on the table day after day. There is no doubt that bad cooking has a great deal to answer for as a predisposing cause of disease. Many people go without food from religious motives, and those who do this are usually the least fitted for the strain that it involves. Many people take absolutely enough food, but take no care to ensure variety. Some,

for instance, never take fruit in any shape or form. They regard it as a luxury; it is not put on the table habitually, and they never think about it. Then, again, many people never eat fat, and this is especially the case with those who have a tendency to consumption. Children very commonly cut off the fat from their meat, and leave it on their plates. They should be encouraged to take a fair proportion of fat with their food, but if they show a positive dislike to it, it is of no use trying to force them. Even when hot fat cannot be eaten, the fat of cold meat is often relished and easily digested. People who have a tendency to consumption should take plenty of butter, and more especially milk. Consumptives often take as much as eight pints of milk in the twenty-four hours with decided advantage. It should be remembered that the milk is then to be used as an article of diet, and not for the purpose of relieving thirst, and it should be taken at regular intervals like the meals, and not in a haphazard fashion. We believe that no better plan could be adopted in threatened consumption than (where means and the season of the year permit) to take up a summer residence in the Pyrenees or Alps, in some of those numerous open valleys, in the pure air of the middle region, where the pastures are rich, and with daily exercise in proportion to strength to try the ingestion of large quantities of milk of the purest quality. For people who will not take fat in other forms, fat bacon for breakfast will often supply the want. White haricot beans or lentils with rich butter sauce often, in these cases, form a valuable article of diet. Many individuals, if they fail to get their proper quantum of food, get weak, not only of muscle and nerve, but also mentally weak. Some people do well on what is called "Bantingism," whilst others suffer considerably under this regimen. Some people get fat on the most abstemious diet, whilst others are always eating, and as their friends say, never seem a bit the better for it. The absence of vegetables, or of the vegetable acids in some form or other, is a powerful predisposing cause of scurvy. Many people, especially women, do not take enough to drink, and suffer, in consequence, from constipation. As we shall see when we come to speak of this complaint, even long-standing torpidity of the bowels may be removed by the practice of taking a tumblerful of cold water the first thing in the morning. An absence of salt produces an unhealthy condition of the skin, and, it is supposed, has, at all events in damp countries, like Holland, a tendency to favour the development of worms. Then, again, there may be a deficiency of another kind of food, for the patient may not get enough fresh air, and oxygen is even

more important for the maintenance of life than beef and mutton. We know that many vegetables, when grown in the dark, lose their colouring matter, and we know how pale and flabby people become who spend their lives in underground, badly-lighted, ill-ventilated kitchens, and cellars. In our large over-crowded cities, and more especially in the metropolis, it is no unusual thing to find from seventeen to twenty people living, eating, and sleeping in a room not more than ten feet square. The filthy and miserable appearance of many parts of London can hardly be imagined by those who have not witnessed them. Dickens's description of a London slum is no exaggeration, as we can testify. "Wretched houses," he says, "with broken windows, patched up with rags and paper; every room let out to a different family, and in many instances to two or even three—fruit sellers and 'sweetstuff' manufacturers in the cellars, barbers and red-herring vendors in the front parlours, cobblers in the back, a bird-fancier on the first-floor, three families on the second, starvation in the attics, Irishmen in the passage, a 'musician' in the front kitchen, and a charwoman and five hungry children in the back one—filth everywhere—a gutter before the houses, and a drain behind—clothes drying and slops emptying from the windows, girls of fourteen or fifteen with matted hair, walking about barefoot, and in white great coats, almost their only covering; boys of all ages, in coats of all sizes and no coats at all; men and women, in every variety of scanty and dirty apparel, lounging, scolding, drinking, smoking, squabbling, fighting, and swearing." Even people who work chiefly by artificial light, as miners and post-office sorters, suffer from a chain of evils which soon bring them below par. They become nervous, depressed, and low-spirited, and in the long run often take to drink.

There are certain diseases distinctly due to the introduction of some deleterious matter into the system either with the food or air. We are not now referring to the slow poisoning produced by the inhalation of minute particles of arsenic given off by arsenical wall papers, or to other similar cases where the injurious effect is the result of some recognised animal or vegetable poison. We mean rather those equally deadly, but far more subtle poisons, which are the cause, or supposed cause, of many of our fevers, as cholera and typhoid. It has been conclusively proved that the germs of typhoid may be introduced into the organism by means of impure water, and that the poison of cholera and some other diseases may be carried for immense distances by currents of air. What the exact nature of these germs may be we do

not actually know, we have not been able to isolate them, or to recognise them by any chemical or microscopical test, and know them only by the startling effects they produce on the animal economy. We all know that many diseases are contagious, that is are capable of being transmitted from one person to another. It would serve no useful purpose to discuss the primary origin of the various contagious poisons, or their capability of being re-developed if once exterminated. It is probable that nowadays the development of any case of contagious disease *de novo* is infinitely rare, and that in nearly every instance it has been communicated from some other person suffering in a similar manner. When small-pox, for example, breaks out in a house we all believe that it has been caught from someone else, and if we fail to discover the mode of communication we see no grounds for altering our opinion, but believe that in that individual case our information is defective. The majority of contagious affections with which we have to deal are communicated from one human being to another, whilst a few, such as hydrophobia and glanders, are communicated by the lower animals. It has been suggested that possibly the poisons of some contagious diseases may be derived from plants, but no conclusive evidence has been adduced in support of this view. The contagious particles must exist under many different forms, and be given off in many different ways. Some affections are caused by obvious parasites, and of this we have familiar examples in itch and ringworm. Most of our contagious poisons have no palpable existence, but are given off in the various exhalations and excretions of the body, but especially in those emanating from the lungs and skin. Some are supposed to exist in the breath alone, as in the case of whooping-cough, whilst others seem to be present in all the exhalations. Hydrophobia is an instance of a contagious malady transmissible chiefly through a special secretion—the saliva.

Many contagious affections are conveyed from one individual to another without the necessity for any immediate contact between them. The contagion is given off into the surrounding atmosphere, and thus passes to the unaffected person, being inhaled, or swallowed, or absorbed by the skin. Diseases that can be thus communicated are said to be "infectious," whilst the term contagion is usually limited to instances in which the disease is communicated by actual contact. The contagious principle often becomes attached to articles of clothing, bedding, hair, and so on, and in this way disease is propagated. These particles retain their vitality or activity for immense periods of time, and may in this way originate several epidemics at long intervals. Persons passing

between the sick and healthy often carry a contagious disease to the latter. A contagious poison may also be conveyed by clothes sent to the wash, or sent home from an infected school, or by letters, cabs, and numerous other agencies. The careless manner in which many people help to propagate infectious diseases is something startling. We recently heard of the case of a lady who left the bedside of a child suffering from scarlet fever, took a cab, and went to church, probably sitting side by side with healthy unprotected persons. The contagious principle often becomes attached to furniture, or to the floor and walls of rooms, and thus infection may arise after an indefinite interval, if the precaution has not been taken of having the apartments properly disinfected. It has been asserted that flies and other insects may be the means of disseminating contagious diseases, by alighting first on infected and then on healthy individuals, and such a mode of propagation is quite possible. There are marked differences with regard to the facility and certainty of transmission of contagious diseases. For example, scarlet fever is less contagious than measles or whooping-cough, but far more so than either typhus fever or diphtheria. The probability of a contagious disease being communicated is in direct proportion to the dose, that is to the quantity and strength of the poison which reaches the system, but it must be remembered that in many instances a very small quantity suffices. Most contagious poisons are destroyed by extremes of temperatures, hence the *rationale* of baking clothes and boiling linen which has been in use in the fever-room, and the explanation of the disappearance of many epidemics during the colder months of the year. Many of these poisons are also destroyed by disinfectants, such as chlorine, and the vapour of burning sulphur. Their intensity seems to increase with overcrowding, as in those horrible "fever dens" of which we hear so much.

We have mentioned the term epidemic. By an epidemic disease we mean one that travels from place to place. Cholera is a striking example of an epidemic disease. It is always present on the banks of the Ganges, but at times it breaks its bounds, and travels all over the civilised world. It usually travels along the lines of human intercourse, and its rate of progress varies considerably in different epidemics. It may take two or three years to spread from India to America, or may do so in as many months. It is said that epidemics travel very much faster than they used to, but that even now in Russia, where in many places human intercourse is very limited, their progress is comparatively slow. Epidemics usually make their entry in England

either at Southampton, London, or Hull. Sometimes an epidemic of cholera will miss certain places apparently on its direct line of march, and then go back and invade them later. Sometimes an epidemic of cholera disappears abruptly after a high wind, just as if it were blown away; but generally it departs slowly and gradually, and in a manner more compatible with its dignity. Cycles of epidemics are sometimes observed, one disease being after a time followed by another, this by a third, and so on.

Some diseases are not epidemic at all, but are what is called endemic—that is, they confine their attention solely to their place of origin. If you want ague you will have to go to it, it will not come to you. Endemic diseases never spread from one person to another, and never go away from the locality except in the person of the individual.

We have shown that for the maintenance of health it is necessary that certain things should be taken into the body, and it is equally essential that certain other things should be given off from it. All waste materials must be got rid of, for if retained they would soon interfere with the working of the delicate mechanism of our organisms. The non-elimination of the urine for even twenty-four hours would be attended with the most serious results. Many people neglect their bowels, and the result is that the health always suffers sooner or later. We all know the untoward symptoms occasionally following a “sudden chill,” or, in other words, sudden arrest of the functions of the skin. Illness is occasionally produced by the abrupt cessation of some long-accustomed discharge. Women whose periods have been arrested by cold or exposure often suffer severely for some days subsequently. It is the rule in animal life that a certain amount of work must be done in return for the crude force taken into the system in the shape of food and drink. If a man were to take his accustomed quantum of food, but instead of working were to remain in bed all day, and do nothing, he would quickly suffer for it. The muscles of the limbs, if not used, very soon waste away, or get converted into fat. People who, although they may not remain in bed all day, take too little exercise, are seldom in really good health. They get fat and bloated, the extremities are cold and flabby, the circulation becomes irregular, and there is considerable shortness of breath. In addition, they get loss of appetite, dyspepsia, flatulence, palpitation, and all manner of evils. The only thing is to make them take more exercise. Plato had such a high opinion of exercise that he said it was a cure even for a wounded conscience. A distinguished London physician recently stated that no

young man could hope to keep in "good form" who did not walk at least ten miles a day, or take an equivalent amount of muscular exercise in some other form. Many people say that they cannot do this because they have not time, but attention to health is very good economy of time. Then, again, in addition to physical work, a man must do a certain amount of mental labour, for if he does not his intellect soon suffers. It is often said in the case of a delicate child that he or she should not be allowed to read or learn anything, and that the brain must be kept quiet. That is all nonsense; you cannot put the brain up in a splint, as you would a broken leg. The brain is incessantly working, and it would be all the better for having some healthy employment. Of course, what it wants is gentle exercise, and care should be taken that it is neither over-worked nor reduced to a state of stagnation. Then, again, when a man has been over-worked, he is told he must go down in the country and keep quite quiet, and not do anything. The result is that his life is a misery to him; he has been an active, busy man all his life, and now you cut him off from his old friends, his letters, his paper, and, in fact, everything that makes his existence enjoyable. The time hangs heavily on his hands, the days are like weeks, and the weeks pass like years, and the result is that he soon gets heartily sick of it, and instead of getting any better, rapidly gets worse. No; what you want to do in a case like this is to change his mental sphere, and not to knock off his work altogether. Try and get him to take an interest in farming, in the rotation of crops, botany, zoology, geology, archæology, agrarian outrage, or anything he likes; but, at all events, give him something to do that he can take an interest in, and do not leave him to wander about all day with his hands in his pockets. This is *apropos* of the necessity for brain-work in some shape or other.

We have pointed out the necessity for the elimination of certain materials from the blood, but this elimination must not be excessive. It may be very good for a man to have a motion every day, but it does not follow that it would be twice as good if he had two motions daily. Excessive elimination is always an evil. Nothing more quickly pulls a man down than persistent diarrhœa. Women whose periods are too profuse are seldom healthy, and it may be stated in general terms that an excessive or long-continued discharge of any kind has a tendency to reduce the vital power. Over-work is another form of excessive secretion of force. We know that by the inordinate use of certain muscles, or sets of muscles, we may get either spasm or wasting. Of this we have examples in the

diseases known as writers' cramp and wasting palsy. Then the over-work may be mental rather than physical. It would seem that some people are not adapted to all kinds of mental work, and it is probable that in many of us certain faculties practically remain undeveloped. Many people who are good scholars could not work the simplest problem in Euclid to save their lives. If a man has no capacity for doing a certain thing it is useless to try and make him do it. If a man wants to be a soldier, it is no good trying to drive him into the Church. This is a mistake that parents often make, and the results are usually disastrous.

The amount of work some people get through is simply enormous. Few people are harder worked than a London physician in active practice. We know a doctor who seldom gets more than four hours' sleep out of the twenty-four. He says that it is not that he couldn't do with more, but it is as much as he can get. Many busy men are constantly at work of some kind or the other, from eight in the morning till past twelve at night. Some of course break down, but others can do this year after year, apparently without any detriment to their health. Instances are known of professional men who have not slept for five days together, and who have not been in bed for three weeks at a time. These sound almost like travellers' tales, but they are true, although, of course, they are exceptional cases. It is astonishing what interest and energy will do, in enabling a man to dispense with rest. It has been said that the twenty-four hours might be advantageously divided into three equal parts, eight hours for sleep, eight for meals, exercise, recreation, etc., and eight for mental work. Few men really require more than eight hours' sleep, but the majority of us have to do considerably more than eight hours' work in the day. It is not so much that a man wishes for the work, as that it is forced upon him. He, perhaps, is the only person who can perform a certain duty, and when, as is often the case, it is a question of life and death, it is almost impossible to refuse. Many people can never force themselves to do more than a certain amount of mental work; they get nervous, and headachy, and then it is all over with them. Forced work, as a rule, tells on a man much more rapidly than purely voluntary work, for in the former case it is usually associated with anxiety. Real over-work gives rise to loss of memory, a general sense of fatigue, and particularly of discomfort about the head, poorness of appetite, lowness of spirits, and other similar symptoms. It is worry that injures more than real work—care killed the cat. Some people are so happily constituted that they never worry much about anything, whilst others are in a fever of anxiety on every trivial occasion.

To get the maximum amount of mental work out of yourself you must be very abstemious in everything. You will find that men who by their brains have made a name for themselves have nearly always been small eaters and drinkers. Some of the finest scientific work of the century was done by a man who at the time was living almost exclusively on oatmeal porridge. The custom of taking a heavy meal in the middle of the day is fatal to all real work. People who have to live by their headpiece should never dream of taking either wine or beer for lunch. It is a small matter, but practically they will find that they can do twice as much in the afternoon if they substitute a cup of coffee for the alcohol. People who feel drowsy and stupid, and disinclined for mental exertion after a meal, may take it as an indication that they have been either eating or drinking too much. At the same time there is not the slightest objection to a glass of beer or a glass or two of wine with dinner after the greater part of the day's work is done. Those who are worried about their work may derive considerable comfort from a cigar or pipe. There is no reason why we should not avail ourselves of Nature's gifts, provided they in no way impair our capacity for work. For those who have much writing to do the practice of getting up early in the morning is a most valuable one. You are fresh, and are quite sure to be free from interruption. In summer it is very enjoyable, and even in winter one soon gets used to it. It is just as easy to get up at four or five as it is at half-past eight. Some people display considerable anxiety to have the world properly aired before they abandon the welcome refuge of the bed-clothes, but when a man has work to do the sooner he sets about it the better. Barristers, statesmen, doctors, litterateurs, and theologians often suffer most frightfully from the effects of over-work. Too frequently a man cannot give up a part of his work without giving up the whole of it. He must either do it or throw it up entirely. Sometimes, however, little modifications in the details of work will afford considerable relief. Sometimes a man may be able to sleep out of town, even if he cannot do anything else. Or why should not he take his books, or his picture, or whatever it may be, down to the river, and work there for a month or two? Even when this cannot be done, some assistance might possibly be obtained in the more mechanical parts of his work. Why should he not get someone to read to him instead of reading himself? Or why should he not get someone to write his letters and papers from dictation instead of wielding the pen with his own hand? One of our most accomplished novelists dictated some of his finest passages before getting up in the morning. A good

shorthand writer is in many of these cases an invaluable aid. Of course this involves a certain pecuniary expenditure, but when people have so much to do their incomes are usually proportionately large.

This, then, concludes our account of the causation of disease, and we now proceed to the consideration of what we call "symptoms." This is a term which is in constant use, and one which hardly requires explanation. A simple example will serve to illustrate its meaning. A man gets an attack of rheumatic fever, and we say that his chief symptoms are high temperature, quick pulse, thirst, loss of appetite, profuse perspiration, and pain, swelling, and redness of the joints. These are, of course, parts of the disease, but we call them symptoms, because it is by their occurrence that we are enabled to recognise the nature of the disorder from which the patient is suffering. We sometimes speak of "premonitory" symptoms, by which we mean the earlier symptoms of a disease which indicate that the patient is ill, but are not sufficiently characteristic to point out the nature of the complaint. For instance, a child may be suddenly seized with shivering or vomiting, and on examination he may be found to be very feverish. Now these symptoms are premonitory of many diseases, and all we can say is that the child is "ailing for something," and that it is probably going to have scarlet fever or measles, or some other acute illness.

Then, again, we talk of "subjective" and "objective" symptoms. A subjective symptom is one that the patient communicates to the doctor, whilst an objective symptom is one that the doctor can find out for himself. For instance, a patient says that he suffers from palpitation and pain in the left side—these are subjective symptoms; but if the doctor listens to the chest, and finds that the heart is beating irregularly, or that the sounds are not clear, these are objective symptoms. Doctors, as a rule, prefer forming an opinion as to the nature of an illness on objective symptoms rather than on subjective. In many hospitals, more particularly those which are called the "special" hospitals, the patients are asked hardly any questions, but are examined straight off. For instance, a patient goes to a throat hospital, it is taken for granted he has a bad throat, and that organ is at once examined. In the same way, at a hospital for consumption the physician wastes no time in asking the patient if he has a cough, but at once proceeds to sound the chest. If there is nothing wrong with the heart or lungs, then comes the question, "What are you complaining of?" And so it is with skin diseases: the doctor looks at the rash, recognises its nature, perhaps asks one or two simple questions respecting its duration, and prescribes the appropriate

remedy. In some instances the symptoms are purely subjective. A woman, for example, is suffering from a bad attack of neuralgia or tic; the agony may be intense, and she may be able to describe her symptoms most graphically, but there is nothing at all to be seen. Malingerers practically appreciate the difference between these two kinds of symptoms. A prisoner who shams ill with the view of getting off hard labour knows that if he says he has rheumatism, or lumbago, or sciatica, he is pretty safe, and that it is very difficult to prove that he has not, whilst if he were to pretend that he had a violent cough, an examination of his chest would at once demonstrate the absence of disease, and lead to his detection.

As a general rule, then, objective are much more valuable than subjective symptoms, but the importance of the latter may sometimes far exceed anything that the doctor can learn by direct observation. In the early stages of some serious diseases of the heart or brain nothing wrong can be detected by the most practised ear or eye, and yet the patient speaks of a deep unrest or sudden horror, which, although it has no objective sign, may be the herald of a sudden or lingering illness. In medicine, as in everything else, there are fashions, and the prevailing tendency of the medicine of to-day is to underrate the importance of subjective symptoms, and to pay but little attention to the account given by the sufferer himself.

For the detection of objective signs there are certain special modes of examination which are resorted to by the physician. In examining the chest, for instance, he sounds it, or, as he says, "percusses" it—that is, he strikes it lightly with the tips of his fingers, with a view of detecting any difference in the note on the two sides. Then he listens to it, or, as he says, "auscults" it, to see that the air enters freely and equally all over. He may listen to the chest by placing his ear on it or he may use his stethoscope. Every physician carries one of these instruments—usually in his hat. They are generally made of some light wood, such as cedar, and, being hollow, serve to convey and intensify the sound.

The increased accuracy of late attained in the recognition of certain diseases has been greatly assisted by the use of special instruments. Without the microscope the existence of many forms of blood disease could not have been established, and to its aid is due the knowledge of the parasitic nature of ringworm and thrush. The detection of Bright's disease is materially aided by the information a microscopical examination of the urine conveys. The thermometer, to the practical

physician, affords, as we shall presently see, information of the highest value, whether regard be had to the detection of disease or its treatment. The laryngoscope, an instrument for examining the throat, enables us to appreciate changes in the organ of speech which without its aid could not have been suspected, and to determine with certainty the presence of other diseases which without it could only have been suspected. The ophthalmoscope, or instrument for examining the eyes, has afforded valuable information in the detection of disease, not only of the organ to which it is more especially directed, but also of the brain. The weighing machine is of great importance in determining the progress—that is, the advance or otherwise—of wasting diseases, and of the value of the treatment being pursued. At our hospitals it is customary to weigh the patient at certain stated intervals, say once a fortnight, and to record their weight on cards provided for that purpose. We need hardly point out the necessity, in making observations on the weight, of always using the same instruments, and more especially of the patient always being weighed in the same clothes.

Wasting or emaciation is sometimes the first observable symptom of disease. It is early seen in the countenance, partly because it is uncovered, partly because a slight diminution of the fat under the skin of the face produces a striking alteration in the features. It occurs in complaints that are not commonly dangerous, as in indigestion, and in hypochondriasis, which is often connected with indigestion. When it does appear it marks the reality of the disease. This wasting happens also in many serious maladies—for example, in consumption and dropsy, although the dropsical enlargement sometimes masks it. It accompanies many fevers, and is reckoned an unfavourable symptom, for it shows that the body is not properly nourished.

There is another word frequently used in connection with the term symptoms which we cannot pass by without notice. We sometimes speak of a “pathognomonic” symptom, and by that we mean one that is characteristic of the disease. Thus the peculiar eruption is pathognomonic of small-pox, and chalk-stones are pathognomonic of gout.

There is considerable difference in the mode of onset of different diseases, some coming on quite suddenly and others very gradually. A man may be on his legs at a public meeting, when he suddenly has a stroke, and goes down just as if he had been shot: or, on the other hand, a man's powers may fail him so gradually that it is impossible for him to say really when he first noticed anything wrong. Frequently the illness is “acute,” not only coming on rapidly, but being severe in

character and brief in duration. The great majority of cases are "chronic," the symptoms setting in gradually, not being very severe, and the progress being slow and protracted. A chronic disease may, however, be the sequel of an acute attack, and an acute attack is not infrequently the cause of a fatal complication in chronic cases.

In many diseases, especially the acute diseases, the illness is divided into different stages. For instance, a person is brought in contact with a patient suffering from small-pox, but it is not till twelve days after that he feels ill, has shivering, and suffers from a pain in the back. This period is called the period of latency or incubation, and varies in duration in different diseases. Its existence is not limited to acute diseases, for we find that it is present in many nervous affections. For example, a child has a severe fright, and a week or so after suffers from St. Vitus's dance or becomes epileptic. Here the disease is not dependent on the entrance of any poison into the body, as is probably the case in most of the fevers, but nevertheless there is a period of incubation. Then again, we often speak of the "stage of invasion" and "stage of decline" of a rash. We do not know that these terms have any particular value, but they are constantly employed, and are often convenient. Certain morbid conditions are often left behind after an illness, and these are usually spoken of as the "sequelæ"—for instance, the occurrence of Bright's disease after scarlet fever is regarded as a sequela, and not as a part of the original disease, because it is not of constant occurrence. Then again, by "complications" we mean such conditions as are liable to arise during the progress of an illness, but do not usually form a part of its course. For instance, a man has acute rheumatism. Has he any complications? you ask. Yes, pericarditis, or inflammation of the sac in which the heart is contained.

When the doctor is called in to any case of illness, one of the first questions he is asked is, "Is it serious? Is there any danger?" In some cases he is enabled to say at once that, humanly speaking, there is no danger, whilst in others he is bound to admit that it is impossible for him to give a positive opinion. Our power of foretelling the termination of any particular attack of illness is small. Medicine is not an exact science, and life is too subtle for us to know or measure all its possible contingencies. We know that certain maladies rarely endanger life, whilst from others perfect recovery is the exception. We know that the mortality in certain diseases is very much higher than in others, but this information will not enable us to foretell positively the termination in any individual case. We may describe the probabilities of any given

disease, and may even express them numerically, and use them as a basis for accepting or rejecting lives at insurance offices, but we are, after all, dealing only with doubts, and not with certainties. Our knowledge of the results of disease, as applied to masses of people, is marvellously accurate, but as applied to individuals it is woefully small. We know how many people will die of bronchitis, and how many of consumption next year, and we even know how many will be killed by being run over in the streets, and how many will commit suicide by throwing themselves in front of express trains, but if we are called in to two people of the same age on the same day, who are stricken down with typhoid fever, we cannot tell whether one, or both, or neither, will die. We can fix the probable duration of certain diseases pretty accurately, but with regard to others our knowledge is infinitely small. We know approximately the duration of shingles, of small-pox, of typhoid and scarlet fevers, and also of such maladies as consumption and cancer of the stomach, but with regard to many chronic affections, such as rheumatism and sciatica, our knowledge is much less accurate, and of less practical utility. An acute disease may prove fatal, or it may terminate in recovery, or it may become chronic. Rheumatic fever affords a good example of an acute disease which sometimes becomes chronic. In certain cases the fever completely subsides in due course, but leaves the joints swollen and painful for weeks, or even months. Some acute diseases, such as scarlet fever and measles, never become chronic.

Diseases have been divided into two groups—preventible and non-preventible, and it should not be forgotten that many diseases that we are powerless to cure might be readily and completely stamped out. A few years ago an attempt was made to estimate the undoubted preventible mortality from disease. A comparison was made between the death-rate of the healthiest registration districts of England and those the least healthy, and the diseases were then ascertained from which the excessive mortality arose. It was proved most conclusively that these diseases might be so reduced in frequency as to bring down the death-rate of the now unhealthy districts to the level of the healthy. First and foremost among preventible diseases is rickets, which, either directly or indirectly, is one of the most fatal maladies of infantile life. The causes of rickets are poorness of the mother's blood, errors in diet, and more especially overcrowding of the bed-rooms. Every doctor knows that not a single child ought ever to die from rickets or its consequences. If we could only provide the poor with light, airy, well-ventilated rooms, we could soon stamp out not only rickets, but many other diseases. The

rich are directly interested in the welfare and sanitary condition of the poor, for the fever which carries off the millionaire in his palace has probably grown and gained strength in the wretched dens which, sad to say, are too often the only habitation of those who earn their daily bread by the sweat of the brow.

Many people suffer from the introduction of deleterious substances into the system. Take the case of what is called "Plumbism," or chronic lead-poisoning, for example. The symptoms of this complaint are colic, constipation, failing appetite, progressive weakness, and loss of power in one or both arms. Lead is a ubiquitous poison, and is often taken for a long time in small quantities without the patient having the slightest suspicion as to the real cause of his sufferings. A skilled physician will soon recognise the nature of the complaint, but it will necessitate a very careful examination to detect the mode of administration of the poison. Sometimes it is the drinking-water which is at fault. The water is stored in leaden cisterns or becomes contaminated by passing through leaden pipes. Sometimes the colic and other symptoms are due to the use of some particular cosmetic or hair-dye. Lead-poisoning is in many instances a "trade poison," and is the constant accompaniment of certain occupations. House painters are not infrequently victims, and it would appear that in their case the lead gains entrance in two ways—by their neglect to wash the hands before taking food, and by inhaling the fine particles which are given off in the process of grinding the carbonate of lead to make paint. Potters, whose duty it is to dip the pots into a solution containing lead in order to impart the necessary glaze to the ware, also suffer. It is, however, amongst lead workers that the most pronounced examples of plumbism are met with. The producer of the raw material rarely experiences any injurious effect, but the smelter, who is engaged in the process of converting the metallic lead into the carbonate, or white lead, readily falls a victim. Compositors at one time suffered largely from handling type metal containing lead. Amongst the file-cutters of Sheffield lead poisoning is very prevalent, and it apparently arises from the fact that the men use a cushion of lead on which to strike the file, much metallic dust being given off in the process. In the same way, leather-cutters suffer; the leather whilst being cut and manipulated being supported on a leaden slab. Japanners rarely escape, and it appears that the japanned articles are brushed over with colours containing lead. Cases are not uncommon amongst enamellers, the dust raised consisting of lead mixed with a little arsenic.

Then, again, syphilis is a preventible disease, and it is indirectly the

cause of many deaths. Many a case of so-called liver disease, or Bright's disease, or brain disease, is in reality dependent on a syphilitic taint contracted perhaps years and years before, in the days of youth and passion. Delirium tremens is a preventible disease, and even gout is in a large proportion of cases dependent on preventible conditions. Of course, the diseases which are due to the injurious influences consequent on the exercise of certain trades are to a certain extent preventible. Many diseases are caused by ignorance of sanitary laws and neglect of the most simple rules relating to food, air, clothing, light, and exercise. One constantly meets people accomplished and highly educated, who would be ashamed to be ignorant of classical and mathematical knowledge, but who do not know even enough to maintain their bodies in a healthy condition. This ignorance of sanitary laws is by no means confined to those who in other respects are uneducated. Over and over again, we find towns springing up under the fostering care of rich and influential proprietors, without any other mode of drainage than the collection of the filth of each house into its own cesspool, and with no other supply of water than that obtained from surface pumps.

And now for a word or two on the subject of treatment. A few years ago the doctor, after asking a question or two respecting the nature of the illness and listening with more or less attention to the patient's views on the subject of his own ailments, ordered a pill or a powder, or a draught or a liniment, and left things pretty much to take their chance. All this has undergone a change, and a very decided change for the better. The modern physician occupies a very different position to that of the old-fashioned family medical attendant, and assumes much more the *rôle* of the scientific adviser. He is not satisfied with a mere recital of aches and pains, but tries to find out by patient investigation *why* it is that the system of the sufferer has gone wrong. He does not accept ill-health as one of the necessities of our existence, but questions its right to be present. He says, "You are ill. What is the explanation of it? How has this come about?" and he feels that he has not properly performed his duty until he has got to the bottom of it. He probes the patient—not with a surgical instrument, but with pertinent questions. He demands implicit confidence and will take no denial; every detail of the patient's life must be laid bare, and no fact, however trivial, escapes his investigation. He is not actuated by impertinent curiosity, but by a strong desire to advise the sufferer for his own good. By long experience he is soon able to put his finger on the weak spot. To one he says, "Your neuralgia is not neuralgia at all! You have an

abscess at the root of this tooth which is tender when I touch it. Go to a dentist and get that put right, and then I shall be in a position to do you some good." To another he says, "You suffer from indigestion because you have no back teeth to grind your food. You want an artificial denture to masticate properly. When you have obtained that I will soon restore your debilitated digestive organs to a sound condition of health." To others he says, "The fault rests not with you, but is attributable to the unfavourable conditions under which you live. You have unwisely taken a house facing due north, the sun never enters your rooms, and until you make some change you will never be well." To another he says, "You have inherited a rheumatic tendency. Your father and mother were both rheumatic, and yet you have taken a house built on a clay soil, and spend most of your days indoors and on the ground floor. Find a house built on sand or gravel, see that the room in which you work faces the south, and if possible select a room on an upper floor. Or he may say, "Your occupation compels you to work in an underground room in the City, lighted all day by gas and without any provision for proper ventilation. You may be powerless to alter this, but see what can be done; for so long as this unhygienic condition of affairs continues you can never expect to have good health." Often enough, it is the food which is at fault; it may be deficient in quantity or poor in quality. It is not only the impecunious who suffer from insufficient food. Women who are left at home all day whilst their husbands are away on business often do not care to order dinner for themselves, and having little or no appetite live chiefly on tea and bread-and-butter. On the other hand, many men are ill and suffer from gout, flatulence, and dyspepsia, simply because they take too much animal food. They take little or no exercise, and yet eat meat for breakfast, meat again at luncheon, and meat at dinner. They cannot work off the excess of animal food and never feel well. They should take less food or, better still, more exercise. Many a man has been restored to health by being made to walk to his business in the morning instead of going by train. Many men smoke too much, and are never without a cigar or cigarette in their mouths. Some can stand it, others can not. Then comes the question of drink. There are many men who are not drunkards, who are not even what is commonly called "intemperate," but who all the same habitually consume too much alcohol. The patient may protest that he takes only a couple of glasses of beer a day, but it may be too much for him. His organs of elimination act slowly and imperfectly, and the smallest possible excess throws a strain on them with which

they are quite unable to cope. Not infrequently it is not so much the quantity of alcohol which does the harm as the form in which it is taken. A single glass of beer will perhaps bring on rheumatism or a sense of discomfort in the limbs, when twice the amount of alcohol might be taken in the form of claret or some other light wine without producing inconvenience. To some people champagne is, to use a popular expression, fatal, whilst they can take a fair allowance of hock or even burgundy with impunity. Many people who suffer from digestive troubles find it advantageous to take their alcohol in the form of whisky freely diluted with water. Alcohol taken at meal times is far less likely to do harm than the casual "nip" on an empty stomach. It is often by attention to these minute and apparently trivial details that restoration to health is effected. The modern physician is a man of wide experience, and is in a position to give a hint which is a thousand times more valuable than medicine.

Concerning medicinal treatment, it must be admitted that there is still in certain quarters considerable scepticism. Curiously enough, this want of faith is met with not so much in those who take medicine as in those who prescribe it. The greatest sceptics are the consulting physicians. Your family practitioner would laugh you to scorn if you were to say you did not believe in medicine—and serve you right, too. What, then, is the explanation of this scepticism among hospital physicians? Fortunately, it is not far to seek. You must remember that the majority of people do not care to consult a physician unless they have something serious the matter with them. If they have only some trivial affection they go to the general practitioner, and regard a consultation as a *dernier ressort*. The result is that the bulk of the hospital physician's patients are what are technically called "bad cases," and, as from their very nature they are unlikely to improve under treatment, he gradually becomes sceptical as to the action of medicines. The general practitioner, on the other hand, gets all kinds of cases, trivial and severe, and is much more likely to be able to form a correct estimate of the value of his remedies. At the same time, we are happy to say this scepticism on the part of the London physicians is far from being universal. One of our most accomplished and successful physicians, a man at the head of the profession, recently made the following "confession of faith." He said: "Now, for myself, I desire to repudiate, absolutely, scepticism in regard of medicine. I believe as confidently in the power of physicians to treat disease successfully as I did when clinical clerk to one of the first practical physicians of my youth.

Extended knowledge and accumulated experience have only increased my confidence in the remedial powers of our art." We should say that a man who disbelieved in the curative powers of medicine must be blind to the evidence of his own senses. The man who could not perceive the beneficial action of quinine in ague, or of mercury in syphilis, would not see a hole in a ladder. You sometimes hear a man say he "doesn't believe in medicine." He might as well say that he does not believe in bread-and-butter. There are, of course, many diseases that are still beyond the power of our art, but this number is decreasing day by day. Every year serves to introduce new remedies and fresh preparations of old ones, and the number of diseases amenable to treatment is steadily, but surely increasing. "How wonderful," says the physician whom we have just quoted, "is the influence of bromide of potassium over diseases for the treatment of which we were but a few years ago almost impotent. A dull, heavy-looking lad suffered for seven years from epileptic attacks, which steadily increased from the first in severity and frequency, till many occurred in twenty-four hours. For a year he was treated by a physician on general principles with little benefit. The case was in all particulars most unpromising; yet from the time the boy took the first dose of bromide of potassium to the present, nearly three years, he has not had a single fit." This is by no means an unusual case. We have seen many like it, and so must every one who has paid the slightest attention to the action of drugs. But it illustrates well the power of a comparatively new remedy over a class of cases which only a few years ago were regarded by practical men as almost as much beyond the curative influence of drugs as is a case of cancer of the stomach.

In the year 1890 the Medical Council issued a list of new "Official Remedies," the additions amounting to forty-four in number. The list contains antipyrine, antifebrin, phenacetin, saccharin, picrotoxin, sulphonal, strophanthus, and a good many others, many of which had been in use for some years, and had already earned a reputation. Amongst other new, or comparatively new, remedies may be mentioned arsenite of copper, which in small doses is now largely prescribed on the Continent in the treatment of cholera; bromide of strontium for nervous excitability; ichthyol for psoriasis and other skin diseases: pure terebene and pinol for bronchitis and winter cough: cascara sagrada for constipation; lanoline as a basis for ointments; menthol as an outward application in neuralgia; cocaine for the relief of pain: and hazeline for piles and hæmorrhoids.

It is not only that we have new remedies, but we have better methods of administering them than we had a decade ago. We no longer believe

in mixtures containing ten or a dozen different drugs selected at random. We endeavour to select THE remedy appropriate to the cure of the disease, and give it in the purest and simplest form. The introduction of "tabloids" has very greatly facilitated matters. These tabloids are simply pure drugs compressed by powerful machinery so that they may be taken without inconvenience. As a rule they are tasteless, but if the drug is nauseous they may be sugar-coated in order to obtain this end. Almost every drug of any importance is now obtainable in the form of tabloids. Each tabloid is a dose, so that there can be no mistake in weighing or dispensing. In the case of liquids the tincture is thoroughly incorporated with some inert substance and then compressed. We have in common use tabloids of aconite, belladonna, charcoal, calomel, chloral, iron, Dover's powder, bismuth, iodide of potassium, bromide of sodium, nitro-glycerine, lithia, sulphonal, antipyrine, pepsine, bicarbonate of soda, ergotin, and a host of others. In addition to these tabloids for internal administration we have new and improved ointments, new inhalers and atomisers for the treatment of diseases of the lungs, and new methods of introducing drugs by injecting them under the skin. We have also learned to value and appreciate many natural mineral waters, the exact sphere of action of which was previously unknown. These have been carefully analysed, their properties have been clinically investigated, and we employ them with advantage as an adjunct to ordinary medicinal treatment. Some of these are of home manufacture, but the majority are imported from abroad. The Friedrichshall and Hunyadi Janos aperient waters are established favourites. Another and very useful member of the same group of remedial agents is the Franz Josef natural aperient water. Many mineral waters contain iron, and exert a tonic action. One of the best of these is the Levico water, which contains both iron and arsenic, and is regarded as a specific for anæmia, debility, nervous prostration, and all diseases depending on malnutrition.

Other illustrations of the strides made in treatment are afforded by the influence of cod-liver oil and the hypophosphites in consumption, of iron in anæmia, of digitalis in heart disease, of ipecacuanha in the cure of dysentery and some kinds of vomiting, of sulphide of calcium in boils and abscesses, and of electricity in many diseases of the nervous system. With reference to the power of our art to alleviate suffering, the difference between the medicine of to-day and that of five-and-twenty years ago is very great. No one who has suffered from a painful local affection can think of the immediate relief which followed the subcutaneous

injection of a dose of morphine without feelings of overpowering gratitude. There is no one who has had to submit to the knife of the surgeon whose heart does not overflow with thankfulness to those who introduced anæsthetics. The electric telegraph, the second greatest marvel of our time, was a thing which, in a rough way, scientific men had long thought possible; but to be cut for a stone and know nothing of the agony, to have a leg removed and smilingly ask when the operation is over, "When are you going to begin?" to have a nail torn away, and look on and laugh while that most painful operation is proceeding—these are marvels of which no one dreamed. No extravagance of fiction equals the living reality. The discovery of the value of the subcutaneous injection of morphine and other anodynes, of local anæsthesia by freezing with ice or ether spray, and of general anæsthesia by ether, chloroform, and laughing-gas, may rank amongst the proudest triumphs of this or any other age.

THE FAMILY PHYSICIAN.

PART I.

I.—INFANT FEEDING.

THE importance of properly feeding infants cannot be over-estimated. It is not too much to say that the child's future from a physical point of view depends largely on the nature of the nutriment he takes during the first few months of his life. The successful feeding of a child requires unremitting attention and constant care.

The best of all foods for a young child is the mother's milk, provided always that the mother is in perfectly sound health and is able to yield a sufficient and adequate supply.

Women who have any hereditary taint, or who display the slightest tendency to consumption or weakness of the chest, should not be permitted to suckle their children. A child that is suckled should be put to the breast at regular intervals, and should be allowed to remain there until it shows signs of repletion, when it should be removed.

A child under three months of age should be suckled every two hours; between three and four months old, every two hours and a half; between four and five months, every three hours; between five and six months, every three hours and a half; and at seven months, every four hours. A child is not to be fed, as is too often the practice, every time it cries. If this is done the stomach gets over-distended, and is never properly rested, and the child becomes very liable to be tormented by wind and spasm.

Should the mother be unable to suckle her child, the services of a wet nurse should be procured. Much care is required in the selection of a person to fulfil this delicate office, and it is best to leave the choice to the doctor. She should have been confined about the same time as the mother, and it is hardly necessary to say that she must not continue to suckle her own child. She should be between twenty and thirty years of age, and between these limits the younger the better. It is

generally supposed that brunettes make better nurses and give better milk than blondes. It is wiser to select a person who has been reared in the country rather than a town dweller. Naturally enough the choice would fall on one respecting whose antecedents something is known, although it is possible to be somewhat too particular in this respect. It must be borne in mind that although physical condition may be transmitted to the child, moral attributes are not communicable in the same way. The greatest desideratum is robust health. Any woman should be at once rejected who has ever had syphilis, who is weak at the chest, or who has the smallest tendency or predisposition to consumption. Whilst the foster-mother is suckling she should be well fed and carefully housed. She should take plenty of exercise, but should not be allowed to perform menial duties or undertake manual labour. Her whole care and attention should be devoted to the child. Many wet nurses are total abstainers, but in the majority of cases their functions are better performed if they can be induced to take a glass of stout or a little sound burgundy with meals.

If the child while suckling should suffer from diarrhœa, or any other form of illness, it is well to make particular inquiries as to the state of health of the nurse. Slight causes, even emotional ones, seem capable of reacting prejudicially on the child through its nurse.

If the mother or nurse has a sufficient supply of milk the child requires no other food during the first seven months of its existence.

Milk is a food which will support life at any age. It is a typical food, which contains all the alimentary principles to be found in the animal, vegetable, or mineral kingdoms. That part of milk which makes *cheese*, which is technically known as caseine, is the nitrogenous principle, and must be compared to lean *meat* in nutritive value. That part of milk which rises to the surface in the form of cream, and of which we make butter, is the fatty principle. That part which gives the sweetness to milk—the sugar of milk or lactine—is exactly comparable to the nutriment got from sugar-cane and other sweet vegetables. Besides this, milk contains saline matter and water.

If the mother has an inadequate supply of milk and the services of a wet nurse are not procurable, the child must be brought up either partly or entirely by hand. If the mother has a little milk this may be utilised during the first month, but not longer.

Children may be reared by hand without the slightest difficulty, but it requires intelligence and tact, and, above all, unremitting attention. The mother must make a study of it, and not relegate her duty to a servant.

For the first six weeks the child should be fed with condensed milk diluted with water, or with thin barley-water, in the proportion of one teaspoonful of milk to the half bottle. Much care should be taken in the selection of a good brand of condensed milk. Many kinds of condensed milk are made from skimmed milk, and are quite unfitted for feeding infants. The "Milkmaid Brand" of condensed milk is made from "entire" milk, and is well adapted for the purpose. Care must be taken to use only milk from a tin or bottle which has recently been opened, for most milks when exposed to the air breed bacteria, and soon become unfit for the child's use. The barley-water should be made fresh at least twice a day, and should be kept in a cool place. Much attention must be paid to the feeding-bottle. The best feeding-bottle is one which indicates the exact temperature at which the milk should be given—a point of no small importance. Such can now be obtained at a moderate price.

Great attention should be paid to the cleanliness of the feeding-bottle. If this is not done a child will be made seriously ill. The tendency of milk to become sour and rancid is too well known to need comment. It is difficult to keep milk sweet, even in a cool, clean dairy; it is doubly difficult to do so when the milk is kept in a warm place, as a child's feeding-bottle invariably is and must be. Milk must not be allowed to lie in a bottle longer than is absolutely necessary. When the child has done feeding, the bottle must be emptied immediately, and the milk which it has left must be thrown away. It must not be kept for the child's next meal, as it is very false economy to run the risk of giving the baby sour milk for the sake of saving that which is of less value than a halfpenny. When the bottle is empty it should at once be washed in soda and water. The tube and stopper will want very careful cleaning, and water must be sucked and blown through the tube, and every visible particle of milk most carefully removed from it. A particle of milk no bigger than a pin's point, if left on the cork, or on the under surface of the cap-stopper, or in the glass tube, or in the india-rubber tube, will to a certainty go sour. Between the meals it is a good plan to keep the tube and cork always in water, but it must be remembered that mere keeping in water is not sufficient to thoroughly cleanse, and that the particles of dried milk, etc., must be carefully removed with a brush or by rubbing. Always smell the bottle to ascertain whether the well-known odour of acidity adheres to it. Smell especially the cork and the tube, which are the spots where acidity is most likely to be detected. It is a good plan to keep

blue litmus test-papers at hand with which to test the milk. Milk should never do more than turn a test-paper dipped in it a delicate pink. If it turns a bright red it is a dangerous degree of acidity, and such milk must be rejected. In hot weather, and whenever milk has to be kept for any length of time, it should be boiled at once, which prevents to a certain extent the tendency towards acid fermentation.

It is a good plan to have three or four feeding-bottles, which should be used in turns. They are quite inexpensive, and the small additional outlay proves a saving in the long run.

At the expiration of from six weeks to two months the child should be put on cow's milk. If the services of one particular cow can be secured for the use of the child, so much the better. Many of the large dairy companies pay much attention to the supply of cow's milk for infant feeding, and are only too glad to carry out any special instructions they may receive. It is hardly necessary to say that the milk, from whatever source it may be obtained, should be absolutely fresh. The milk of cows whose calves have recently been taken from them, or who from other causes are in a state of disquiet, should not be used for nursing purposes. It is well to obtain the milk from some dairy company which makes a point of a periodical examination of the sanitary conditions of its dairy farms. All milk should be refused when there is the slightest suspicion of insanitary water supply, and all milk should be rejected which is "surplus" milk and has been kept by the aid of preservatives. These conditions may seem stringent and difficult to carry out, but practically there is so much competition amongst milk vendors that they are very willing to meet the not unreasonable requirements of the customers, especially when they are endorsed by the authority of the medical attendant.

Cow's milk is richer than human milk, and to make it adaptable for the requirements of the child it must be diluted. If common water is used for the purpose the milk curdles in large lumps in the stomach and produces vomiting and diarrhoea. A much preferable diluting agent is lime water, which to some extent neutralises the acidity of the stomach and prevents the formation of large and firm curds. The best proportions are equal parts of fresh milk, hot filtered water, and lime water, one third of each being carefully measured. Another good way of preventing the curdling of the milk is by the addition of some thickening substance, such as gelatine or barley water. For a child two months old the correct proportion is equal parts of milk and barley water. It is customary to add a little sugar of milk to this mixture, in order to make it palatable

to the child. There is no harm in this, but the sugar used must be the purest which can be obtained, and great care should be taken not to add too much. The coarse brown sugar used by the poor is a very bad thing for children.

The proportion of milk taken by an infant for each meal should be gradually increased as he grows older. From a half, the quantity may be gradually raised to two-thirds, and then to three-fourths; the proportion of milk sugar being also increased.

It is difficult to lay down definite rules as to the quantity of milk which should be given at a meal. The weights and sizes of children at birth differ immensely, some weighing much more than others. Cases are recorded in which a new-born baby has weighed as much as fourteen pounds and as little as three pounds. If a child weighs four times as much as another child, it will require four times as much food, so that it is impossible to lay down any absolute rule as to the quantity of nourishment which children are to have. About a quarter of a pint (5 oz.) may be taken as the maximum amount which should be put at any one time into a child's feeding-bottle. A child, like a grown-up person, will exhibit symptoms of hunger and satiety, and when it shows that it has had enough the watchful nurse will remove the bottle, and will soon learn the quantity which the infant is capable of taking.

The same difficulty is experienced in laying down rules as to the frequency of feeding, but the following table will give some rough indication which may be of value :—

Under 3 months	Every 2 hours
Between 3 and 4 months	„ 2½ „
„ 4 and 5 „	„ 3 „
„ 5 and 6 „	„ 3½ „
At 7 months	„ 4 „

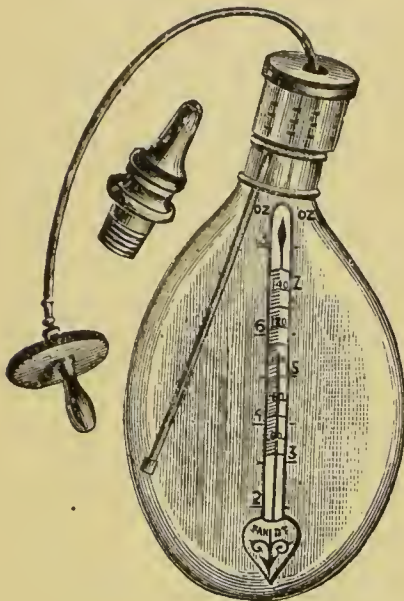
As the intervals between the times of feeding get longer, the quantity given at any one time should be proportionately increased. A child should never be roused from its sleep for the purpose of feeding, and on the other hand, feeding at odd times should never be resorted to as a means of quieting a noisy child. Regularity in feeding is of the greatest consequence, and if the rules laid down be departed from, the child will suffer from wind and colic, and all the troubles which follow on repletion.

After taking food the child will probably sleep for a couple of hours. Should he be disturbed or restless, the meal has probably disagreed, and he is suffering from flatulence and colic. To obviate this the best way

is to add a teaspoonful of cinnamon water or dill water to the next bottle of milk.

If the child fails to thrive on the mode of feeding we have indicated, the milk should be peptonised. To prepare peptonised milk fresh for each time of using for infants under six months old the following directions should be followed:—

Into a perfectly clean feeding-bottle pour a quarter of a pint of milk and a quarter of a pint of water, and add a quarter of a peptonising powder. Keep warm for twenty minutes by placing the bottle in a basin of water as hot as the hand will bear, and then sweeten with a little sugar of milk. The milk so prepared must be used at once, or else placed on ice, and then allowed to regain the temperature indicated by the arrow, before being administered to the child.



FEEDING-BOTTLE WITH
THERMOMETER.

For a child over six months old the proportions are a quarter of a pint of milk, half as much water, and a quarter of a peptonising powder.

If the infant should suffer from constipation it is a good plan to substitute for the sugar of milk a quarter of a teaspoonful of Kepler Extract of Malt.

If fresh cow's milk from any cause is unobtainable, we must fall back on condensed milk, or give the milk of some other animal, such as the mare, ass, sheep, or goat. Some children cannot take cow's milk, and yet thrive surprisingly on the milk of the ass or goat. Both these milks should be boiled before being used. Asses' milk not infrequently acts as a laxative unless previously boiled. Either of these milks may be peptonised in the same way as cow's milk.

It sometimes happens amongst the poor that only skimmed milk can be obtained for the child; when this is the case it is a good plan to boil a little suet in the milk so that the fat which has been removed by skimming may be replaced.

No farinaceous food should be given to a child until he has cut his teeth.

Starchy or farinaceous food includes bread, biscuit, rusk, baked flour, tapioca, sago, rice, arrowroot, potato, and all allied articles; and we cannot too strongly impress upon mothers the fact that children are quite

unable to digest such things, and that the giving of them is certainly the chief cause of "wind" and those other forms of indigestion which are so serious a drawback to the healthy development of a child. Starch in all its forms must be mixed with saliva, and must be thoroughly chewed before it can be digested. The indigestibility of new bread is chiefly due to the fact that, owing to its consistence, we often bolt it, instead of chewing it carefully and mixing it with saliva. Now, very young children do not secrete much saliva, and what there is, is incapable of acting upon starch so as to help its digestion. As they have no teeth, it is manifestly impossible for them to give the all-needed chewing to starchy food; so that on these two grounds it will be evident that toothless children must not be fed upon the prohibited "farines."

To write that "pap is an abomination" will seem to be a doctrine full of heresy; but it is nevertheless true, and we have no hesitation in asserting that those nurseries will be the healthiest in which pap is not known.

No mother or wet nurse should be allowed to suckle a child after the ninth month. In the great majority of cases it is better to wean the child at the expiration of the eighth month, or even earlier.

No beef tea or broth should be given to a child until he is at least ten months old. At that time he may be tried cautiously with a little beef tea, veal or mutton broth, and may also have the yolk of an egg, lightly boiled, or beaten up with milk in the bottle. The child may have light puddings when twelve months old, but no meat for many months later.

Respecting the various patent foods which are now so much in vogue, it is difficult to express a decided opinion. They, as a rule, consist of some more or less farinaceous substance. In the majority of cases it is better to avoid them, but exceptionally they may be useful. Undoubtedly children sometimes thrive on them, and actually do better on them than on a purely milk dietary.

We have now to consider a very important event in the history of the life of a child—the process of "weaning."

Directly a child begins to cut its teeth, and certainly as soon as four teeth have made their appearance, the process of weaning should be commenced. Prior to the process of dentition, a child is capable only of the act of suction, and its tender, almost rudimentary, jaws would be incapable of chewing, even supposing the necessary teeth were present. The appearance of the teeth, however, may certainly be taken as an indication that the jaws are to commence work, and the fact that the

front teeth appear first would seem to be a beautiful provision of Nature for compelling the mother to think of discontinuing her nursing at the beginning of, instead of the end of, the first dentition.

It very often happens that the appearance of the teeth is considerably delayed, and it not unfrequently occurs that a child may be more than a year old before it begins to cut its teeth. What ought to be done in such cases? We think decidedly that the weaning ought not to be delayed, but should be commenced at nine months at the latest. Very few women are capable of properly nourishing a child for more than nine months, and the continuance of the act of suckling after that period is mischievous alike to the mother and child—mischievous to the mother by causing an undue drain upon her vital powers; and mischievous to the child because the nourishment furnished by the exhausted mother is not strong enough to ensure its healthy development. When the teeth are delayed in a child who has been kept absolutely to the breast, it may well be questioned whether the condition of the mother is not the cause of the delayed dentition.

It is very much the custom of the women of the labouring classes to over-suckle their children, and there can be no doubt that the practice is fraught with great danger to health. Over-suckling is often, no doubt, the result of ignorance; often, perhaps, a weak-minded woman is unable to make up her mind to sever that intimate bond which unites her offspring so closely to herself; but more often we believe that it is a custom resorted to with the avowed intention of placing a barrier against future pregnancies. The families of the poor are very apt to outgrow the straitened circumstances of the parents, and the woman, in the ignorant hope of delaying pregnancy, resorts to the dangerous practice of over-suckling. It cannot be too generally known that over-suckling is no barrier to pregnancy, and it is an every-day occurrence for a nursing mother to become aware that the darling at her breast must, in a few short months, be deposed in favour of another little stranger.

Although over-suckling is powerless to prevent pregnancy, it seems to have a very decided and a very baneful influence on the health of the child with which the mother is pregnant; and there is good reason to believe that the common disease called rickets is very largely dependent on a disregard of a natural law for which common sense, if no higher motive, ought to ensure respect.

How is a child to be weaned? This must be effected gradually, and at first, perhaps, there is no better plan than the substitution of an

artificially-prepared meal twice in the day in lieu of suckling. The meal should measure a quarter or half a pint, and should be given in a feeding-bottle, and should consist of warm milk and water thickened with baked flour. Baked flour is preferable to raw flour, because it is more digestible. The action of the heat upon the starch granules of the flour causes them to burst and become more easy of digestion, and, further, a chemical change takes place, whereby some of the starch is converted into *dextrine* or gum, which dissolves more readily than pure starch. Baked flour may be prepared by putting the flour in a basin and simply placing it in the oven, or it may be tied up in a basin and boiled. In this the flour dries into a hard mass which needs to be broken and powdered before being used. Baked wheaten flour is probably the best thing possible to thicken a child's milk with. It is certainly to be preferred to the so-called "corn flours," which are too often merely pure starch, whereas wheaten flour contains nitrogenous and other valuable dietetic principles in addition to the starch, which is, no doubt, its most important constituent. The next best thing to baked flour is well-baked bread, got from a reliable baker who does not mix potatoes or alum with the staff of life. The bread must be thoroughly baked, *i.e.*, the flour must be thoroughly cooked. Should the child suffer from flatulence or disturbance of the bowels a little gruel should be added to the milk, which should then be peptonised in the manner already indicated.

The process of weaning would, under ordinary circumstances, be commenced when the child is seven or eight months old, and the substitution of prepared meals for the breast ought to be gradually carried out until, at the end of the ninth or tenth month, it has become wholly independent of its mother. Some children are said to be easy to wean, and others are said to be weaned with difficulty. The real difference is to be found in the amount of tact and patience which the mother is able to bring to bear upon the matter. It is necessary to be firm and methodical with a child, and if at first it refuse the bottle, it will, with a little coaxing, "come round," and, having had its cry out, will take to its new course of life.

A child should not have more than two allowances of thickened milk per diem, and the mother's milk should be replaced in the main—at least at first—by cow's milk and water.

When the process of weaning is thoroughly completed—that is, at about the age of ten months—the child may begin to take a little thin

broth or beef tea, which should be given once a day instead of one of the meals of milk and water.

At this time an attempt should be made to discard the bottle, and to feed the child with a spoon. Beef tea and broth ought never to be given from a bottle, and when the bottle has been discarded, the child will be less open to two dangers: the danger of over-feeding, and the danger of receiving sour milk. The diet of a child should be entirely restricted to milk and water, thickened milk, and beef tea, until it is a year and a half old, at which time, if healthy, it will have cut nearly all its teeth, and will be able to grapple with a little solid meat.

At two years of age all the teeth will have been cut, the period of infancy comes to an end, and that of childhood begins. The child is no longer a helpless baby. It begins to stand, to walk, and to prattle, and is capable of eating and digesting stronger and more complicated food than heretofore.

Milk should constitute the *pièce de résistance* of the nursery, and it ought to enter largely into all children's meals. A cup of bread and milk nicely sweetened is what all children like for breakfast. Milk and water or pure water should be the only beverages for young children, and a milk pudding at dinner is a wholesome and pleasant addition to their simple fare.

One meal of meat, in the middle of the day, is all that young children require. The youngest may have bread-crumbs and gravy, the eldest should have pieces of meat big enough for them to chew, and the nurse should ever be on the watch to see that they really do chew their food. The sin of "bolting" food should always be repressed, since it is sure to lead to difficulties of digestion. Children who are too young to properly chew their food will require to have it cut or minced for them, and this is a matter which demands a little thought from the mother or nurse. Do not mince the food into little solid square pieces. If this is done, the child bolts them whole, and they arrive in the stomach in the most indigestible form imaginable. Meat for a child too young to chew should be very finely pounded or shredded, so that the actual fibres of the meat are torn asunder. If this be done, the juices of the stomach will be able to act upon it. Nothing is better, perhaps, for a young child, than a *purée* of meat rubbed through a fine sieve or a "*purée cloth*." Red meats are better and more nourishing for children than white; and mutton and beef are preferable as nursery diets to the white flesh of poultry.

Bread and butter is the chief form in which children take their

farinaceous food, and no better form can be devised, because it cannot be swallowed without thorough mastication.

Potatoes should never be given until the child has cut all its teeth, and then great care should be taken that the potatoes are not too young and are thoroughly boiled. Green vegetables may be given in small quantities at two years and a half.

Neither fruit nor vegetables should ever be given to very young children in a raw state, unless exception be made in favour of strawberries, currants, and raspberries, which may be allowed as an occasional treat. They should, however, be carefully smashed up before they are given.

Jams and preserves are always highly appreciated in the nursery, and preference is to be given to jellies and to those preserves which are free from stones and seeds. Marmalade, which is, or ought to be, largely composed of orange-peel in a very indigestible form, should never be given. Children are fond of treacle, and this is a wholesome and economical food in which they may be allowed to indulge moderately.

Pasties and thick "stodgy" puddings are very indigestible to the young, as are all combinations of flour and butter. They may be, and are, allowable for the schoolboy, who is strong, and participates eagerly in all manner of athletic games, but in the nursery they should never be tolerated. Plain boiled rice, with sugar or preserve, or stewed fruit, is the best and safest nursery pudding. All dried plums and currants which are liable to be swallowed whole should be tabooed.

Never force a child at its food. If the child has a healthy appetite it will eat whatever is put before it. If it leaves its food, or plays and dawdles over it, it is not a good plan to press it, and it is worse than useless to be angry with it. The best way is to tell the child not to eat if it does not feel inclined, and then, if the loss of appetite is due to some passing cause, the natural craving for food will have returned by the next meal-time. If it does not return, then the question arises, whether or no the child is really out of health, and if such be the case, it will generally be necessary to throw the child back a stage in its diet, and confine it to fluid nourishment.

Never try and tempt a child's appetite with improper food. Provided that all the articles of food set before a child are wholesome, it should be allowed to exercise its own discretion, taste, or instinct in the rejection of, or preference for, any particular article of diet. Many children—most children, in fact—will not eat fat, and it is common to see them leave all the pieces of fat at the sides of their plates, and restrict their attention solely to the lean. The "leaving of fat" is a very common

casus belli in the nursery, but it ought not to be, and if a child dislikes it, do not give it any. A big slice or lump of yellow, greasy, slimy fat is not an appetising thing to look at, and although we have acquired a taste for it, we should remember that such taste has undoubtedly been acquired, and will be acquired in time by our children. There are many ways of giving fat in a form which is more pleasant to the child than in tangible slices or lumps. New milk contains a quantity of fat, and a bread and butter pudding, or bread and butter itself, is of course very rich in it. The yolk of an egg, too, contains a large quantity of fat, so that a little consideration will enable us to give a child as much fat as is necessary or good for it without shocking its tender sensibilities.

The nursery beverages should be water and milk and water. The sole nursery condiment should be salt.

Tea, coffee, beer, or wine, are unnecessary for young children, and should be entirely withheld. Occasionally, when a child is recovering from some acute disease, it becomes necessary to stimulate the appetite a little, and at such times a little wine and water may be allowed. Weak natural wines are the best and most wholesome for young children, and they very soon learn to appreciate a small quantity of claret, or Burgundy, or white Rhenish wine. Port and sherry, as sold in this country, are far too strong for young children, and if the light wines are not obtainable, it is advisable to fall back upon beer.

Children and adults should never have their meals together. Such a plan is bad for the children, and disagreeable for grown-up persons. The diet of adults is not suitable for young children, and, among the poor, one of the main causes of infantile disease is undoubtedly the habit which obtains of feeding their young children upon "the same that we have ourselves." Nurses ought never to have their dinner with the children, but should first give the children their dinners, and go and dine themselves in another room. The habit, which is too common in England, of allowing children, especially on Sunday, to come into the dining-room while dinner is on the table is a very bad one, and when we see children allowed to be so ill-mannered as to pester guests, and to have a piece off mamma's plate, and a sip out of papa's glass, we feel that if those children are laid up, it will be due entirely to the folly of their parents.

II.—THE MANAGEMENT OF CHILDREN.

WE propose to lay down a few simple rules which may be of service in helping the inexperienced to safely guard the young committed to their care.

In the first place the child must be kept scrupulously clean. This perhaps is the most important point in the management of children. The first office which is performed for a child is to wash it, an operation which demands skill, patience, and attention from the nurse. A child should be washed all over at least once a day with warm soap and water. This should be done before a fire, and it is needless to say that it should be done expeditiously, so as to run as little risk as possible of causing a chill. It must be remembered that the skin of a child is very delicate and very sensitive—sensitive to heat and cold, or to the irritation of dirt, moisture, or friction. Children are very liable to skin diseases, and these diseases are in many instances attributable to want of cleanliness. The choice of a bland and unirritating soap is a matter of much importance. Any soap which contains much free alkali should be rejected. Whatever soap is used, care must be taken that after washing the body is wiped thoroughly dry. It should first be dried with a soft towel, and it is a good plan to finish with an old soft silk handkerchief. It is customary to powder a child's body after washing. This is a good plan, as it insures dryness and prevents friction. The body must be *dry* before the powder is applied, and care must be taken that there is not enough moisture on the body to cake with the powder, or it will be productive of harm instead of good. A good powder is very finely-powdered starch. The "violet powder" of the shops is merely powdered starch scented. The scent is simply an agreeable addition. Powder puffs are usually sold for the application of powder, but a piece of cotton-wool will answer the purpose well.

The buttocks and pudenda of a child are constantly wet from the passing of urine and motions. A very young child is practically never

dry, the dribbling of urine being almost constant. The bowels of a new-born baby should not act more than four or five times a day. This constant involuntary passage of the excretions necessitates the wearing of napkins. Napkins should be made of old calico. Old sheets or pillow-cases form an excellent material; they should not be made of linen. They should be double, and of a square shape—about three-quarters of a yard square will be found a convenient size. A napkin should be folded corner to corner, like a shawl. The broad side of the triangle should be wrapped round the waist, and the pointed end should then be passed between the child's legs from behind forward, and the three ends fastened in front by a safety pin. Ordinary pins should not be used, lest the child be hurt by them. Some mothers always fasten the napkin with a needle and thread; but whenever we see this we cannot avoid the suspicion that the napkins are not changed as often as they might be. Waterproof materials must not be used for napkins, because they keep in the moisture too much. When the child is in its cot, it is a good plan to place a small piece of waterproof sheeting under its middle, so as to protect the bed-clothes. Napkins should be changed very frequently, and the child washed, dried, and powdered. The motions and urine are both highly irritating (much more so than warm salt and water), and if this be left long in contact with the body the skin will become inflamed and sore. This may savour of over-carefulness to many; but when the child falls ill, and they find by bitter experience how much more attention a sick child requires than a healthy one, they will discover that no amount of attention can be considered as too much if it but tend towards keeping the child healthy. The necessity of wearing napkins places the human infant at a disadvantage when compared with the young of any other animal. It is a necessity, we admit, but it is a necessity which is fraught with no small amount of danger to health. Disease sometimes places the adult in the same position as the infant in these respects, and the mind recoils at the thought of the disgusting discomfort which this entails. The evils of the napkin can only be counterbalanced by the most unremitting care and attention to cleanliness. Any nurse who is slovenly in this important matter is not fit to have the care of young children.

It is very important to keep children warm. They are best kept warm by warm clothing, and not by big fires and closed doors and windows, which are highly injurious. The clothing should not be tight, and should allow of the free exercise of the limbs. That which is next the skin should be of flannel. Cleanliness in the clothing is of great importance, and

it should be changed whenever it becomes at all soiled. A healthy child delights to kick, and in its cot seems to spend its time, when awake, in smiling and crowing, and in an endless endeavour to put its toes into its mouth. This kicking takes the place of exercise in older people.

Children that are born prematurely require a great deal of artificial heat, and in the few cases on record in which a child born at the sixth month has been reared, this has only been by the most extraordinary efforts in supplying it with artificial heat by means of an incubator.

A child must have plenty of pure fresh air. The windows of the day nursery should be opened wide at least once a day, to get the room thoroughly ventilated, and great care should be taken that the sleeping-room is not overcrowded. The washing of small articles (such as napkins, etc.) is not to be carried on in the nursery, as the steam from the hot water and the drying of the clothes spoils the atmosphere. A child should be taken frequently into the open air during fine weather, its body being well wrapped up, and its face protected by a thick veil. Although we recommend plenty of fresh air as necessary for a child, we need hardly say that it should be protected most carefully from draughts and chills, to which they are particularly sensitive. When in the air, the head must always be carefully protected from the heat of the sun, and the nurse must always be careful to hold a sunshade over it, and to pull up the head of the perambulator when necessary.

A new-born child passes the greater part of its time in sleep. It wakes up when hungry, and having satisfied its hunger, it falls asleep again. It dozes quite twenty out of the four-and-twenty hours. As it grows, it shows a gradually-increasing power of doing with less sleep, but few healthy children under two years old sleep less than twelve or thirteen hours.

It is necessarily of the greatest consequence that a child's sleeping quarters should be comfortable and wholesome. Every child should have a cot for itself, and the room in which it is placed should be thoroughly clean and well ventilated. The bed-clothes should be removed as often as they are soiled, and they should be protected by a piece of macintosh sheeting, placed under the child's middle. The bed should be thoroughly made once in the four-and-twenty hours, and the clothing should be exposed to the air for an hour every day.

It is not a good plan for children to sleep in the same bed with

their parents, and it is far better for them to lie in a separate cot by the side of their mother's bed. If they sleep in the same bed, they are very apt to get their heads beneath the bed-clothes, and in that case they do not breathe the pure air which is necessary for them. Further, it is not uncommon to hear of children being killed by "overlaying"—that is, by suffocation during the night, by their parents lying upon them. In most of these cases, no doubt, the parents have been tipsy, but the fact that young children do get actually suffocated when lying in their parents' bed makes it highly probable that many more narrowly escape a similar fate, or, at least, suffer considerably from breathing an impure atmosphere.

Another reason why a child should not sleep with its mother is the temptation which the latter has to over-feed it. If a child cries in the night, it is the routine of many mothers to give it the breast, and this irregular feeding at night is very often the beginning of serious digestive troubles.

A child will sleep two or three hours at a stretch, and if it be healthy it will not cry nor disturb anybody. The inference may, in most cases, be drawn with safety that a good, quiet child is a healthy child, and that a noisy, fractious, crying child is not well. In this latter case, the worst thing that can be done to it is to overfeed it, which is generally merely adding fuel to the fire; and although one may succeed in this way in quieting it for a time, the result in the end is to perpetuate its noisy condition. A baby must be fed at its fixed proper time, and at no other, and if it cries between these, it should be nursed, and search should be made for anything which may be causing it uneasiness. The napkins should be changed; the state of the feeding-bottle (if it be using one) should be looked to, and the condition of the mother's health should receive consideration. Perhaps the child may need a dose of purgative medicine. Perhaps it is cutting a tooth, and the gums may need lancing, or the child may be quieted by giving it something, as a coral or a bit of india-rubber, against which it may press the gum. We cannot pretend to discuss all the possible causes of a child's wakefulness, but whatever they may be, it can never be right to feed it too often, and it is never justifiable to administer soothing syrups or soothing powders, or any form of narcotic medicine, all of which are literally slow poisons, and highly dangerous.

It has further been alleged, with regard to the practice of children sleeping in the same beds with their mothers, that it is very liable to cause *ophthalmia*—that inflammation of the eyes which is such a scourge

to young children, and which not unfrequently ends in loss of sight or permanent disfigurement and impairment of vision. The cause of the ophthalmia is found in the fact that the child sleeping with its mother often falls asleep in the act of suckling, and then the milk or perspiration, getting into the eye, act as irritants, and cause the inflammation. Such a result is only to be found, probably, among the dirtiest of the poor, but its occurrence from the cause stated should make nurses very careful not to run any unnecessary risks.

Children want a great deal of fresh air and exercise. The air which a child breathes should always be as fresh as possible, and a good nurse will always bear a watchful eye to the ventilation of the rooms in which it lives. A nursery should be light and airy, for sunlight is, probably, almost as important for the healthy development of children as air itself. The windows should be thrown open at least once a day, and every means for the artificial ventilation of the room should be attended to. The room should not, of course, be cold and draughty, but it is quite possible to obtain fresh air without these disagreeable concomitants.

Every facility should be given, even to a newly-born child, to kick and throw its arms about, and exercise its limbs in every way that Nature dictates. The habit, which is common throughout Germany and in many northern countries, of using "swaddling clothes," which are wound round and round a child until it looks more like a cocoon than anything else, is thoroughly bad, as it prevents freedom of movement in the lower limbs. Not only is freedom of movement prevented in this way, but ventilation of the legs is rendered impossible, and although it is important, no doubt, to keep a child's legs warm and free from cold draughts of wind, it is scarcely less important to ensure a free circulation of air beneath the garments. The habit of using swathing bands and binders round the abdomen is bad, because it tends to confine the movements of the child's chest, and to impede the healthy action of respiration. Immediately after birth, it is necessary, no doubt, to encircle the abdomen with a broad band of flannel, but great care should be taken to ensure that it is not too tight, and it should be discarded altogether as soon as possible.

On the whole, perhaps, there is no better form of garment for young babies than the "long clothes" which are common in this country. They keep a child warm, they protect it from draughts, and at the same time allow of the free exercise of the limbs, and provide for a healthy circulation of air around them.

When a child is a month old it should, if the weather be suitable, be taken out of doors for a short time every day. The best vehicle for it at first is its mother or nurse, in whose arms it must be carried. Care must be taken to keep the child in a recumbent position, and to support the back thoroughly with the left arm. Children should not be allowed to get their backs bowed while they are in their nurses' arms. If a child shows any inclination to sit up, it should be allowed to do so, as the exercise of the muscles of the back for a time will tend to strengthen them. In the present day, the nurse's arms have been largely superseded by "perambulators," and even the youngest babies may be accommodated with a little carriage, in which they can lie at full length, in a state of complete repose. There is a great advantage in using these handy little carriages, for the nurse is not only saved the weight of a burden, but the child is not dependent upon the state of fatigue or freshness in which its nurse happens to be. Great care should be taken not to jolt a child unnecessarily when it is riding in a perambulator. This is the one point in which a perambulator is a less desirable conveyance than the nurse's arm, but the jolting of which we speak depends upon the carelessness or stupidity of the nurse, rather than any inherent defect in the vehicle. Every perambulator should have the tyres of the wheels furnished with vulcanised india-rubber bands, which help to break the shock of any accidental concussion. In crossing streets, in going over inequalities in the roads, and in going up or down steps, great care ought always to be taken to lodge the front wheel securely, and to support the hind part of the perambulator, as the two back wheels are allowed slowly to follow it. It is no uncommon thing to see nursemaids wheeling perambulators who have, evidently, not sufficient intellectual capacity to give a thought to the well-being of the tender occupant of the carriage. They swing it on to its hind wheels, and thus tilted backwards with its fore-wheel in the air, they proceed to cross a street. It is a piteous sight to see the poor baby undergo a kind of temporary collapse, as the loud bump with which the carriage falls off the kerb-stone tells of the severe shock which has been communicated to the spinal column of the child. Any nurse who is careless in such a small but nevertheless important matter is not fit to have charge of a baby.

While a child is in the open air, it is of much importance to protect it with great care from cold, and also from the heat of the sun. A child should always be well wrapped up, and in windy weather its face should be protected by a veil. Its head should have a warm covering,

which should be fastened by strings—a knitted hood with a string let into the border is the best thing. Elastic, going under the chin or behind the ears, should never be used. It is impossible to regulate the pressure, and it is very liable to chafe and rub and cause sore places.

The heat of the sun is very much felt by young children, and every perambulator should have a big hood, with an additional sunshade fixed to the front of it, so that a child may be completely screened, when necessary, from the scorching rays of the sun. Many an attack of tubercular meningitis has been determined by the negligence of a nurse in this matter.

Older children who are no longer dependent for their locomotion on nurses and perambulators ought to be provided with hats of a proper shape. They should be somewhat high in the crown, so as to include a layer of air between the crown of the hat and the top of the head. In this way the head will be kept cool, and there will be no danger of the direct rays of the sun causing a sort of sunstroke, with all its dangerous symptoms and consequences.

The education of a baby should be commenced as soon as it is born. This may seem a strong assertion, but we feel sure that is a right one. We do not mean by education its intellectual training, but rather its moral training. “Manners make the man” was the good motto chosen by William of Wykeham, and it should be constantly borne in mind by parents and nurses. We have endeavoured in this article to lay down certain fixed rules for the guidance of those who have the care of young children. Those rules are the result of long experience combined with scientific reasoning. They have been practically ratified by all the best authorities, and those who adhere most firmly to them will have the least trouble in bringing up their children.

The rules we have laid down, then, are not to be departed from merely because a child is troublesome. If, for example, a child is fed every time it cries, it soon gets to know that it has but to bellow to be sure of obtaining what it wants, and by yielding to its desires against our better judgment, we are instilling into the almost unconscious infant a lesson in selfishness and gluttony which perhaps it may never forget. A habit once formed is not easily shaken off, and the jar which the compulsory cessation of a bad habit causes gets more difficult to bear every day that the child lives. By giving way to a baby we are, in fact, pickling the rod which is to make it smart a few years hence. If the mother or nurse of a child is reasonable, and does not yield to its every cry, the child soon ceases to connect together the two acts of crying and

feeding, and stands less chance of becoming self-willed and gluttonous than its fellow who perhaps has received less judicious management. A habit scarcely less harmful than that of feeding a child whenever it cries, is the one of giving it something to suck to keep it quiet. It is a common thing in the dwellings of the poor to see the baby lying in its cradle, and sucking a piece of flannel which has been given it by its mother. Can it be wondered at that a child who has been taught so filthy a trick should grow into a listless, idle, self-indulgent creature? When, a few months hence, it takes to sucking its thumb, the foolish mother will probably administer many a slap, because the poor child perseveres with the very trick which she has so carefully taught it.

There are other matters which a child may be taught very young indeed, and we should advise every nurse to begin, when the child is a month old, to try and teach it a periodical observance of the calls of nature. If a child be fed at regular fixed times, and have its napkins removed at stated intervals, and be placed so that Nature's dictates may be obeyed and facilitated, it is surprising how soon it will learn to take advantage of these opportunities which are afforded it. We have no hesitation in saying that some children are as forward in these matters at four months old as others are at two years, and the sole reason for this difference is to be found in the fact that the former have been "educated" with a little trouble, while the latter have been allowed, as the Scotch say, "just to gang their ain gait." Young children should never be needlessly placed in temptation, and for this reason it is advisable that the denizens of the nursery should be kept as much as possible to themselves. When the adult and infant members of a household mingle together, either for purposes of feeding or otherwise, it is not to be expected that the former will be constantly under restraint for the sake of the latter, and it should be borne in mind that it is almost a real hardship for a child to see others doing sundry things, and eating sundry things, and to be told that such things "are not for little children."

It is very hard to deny the child we love, and much spoiling of children is brought about by the unnecessary mingling of children and adults at meal-times and on other occasions. Among the poor, who necessarily inhabit the same rooms as their children, improper feeding is the rule, and the number of children who fall ill because, as their friends say, "they eat the same as we do," is hardly to be told.

It is a great mistake to allow children to learn things wrongly, and we not unfrequently see babies who have been taught to speak in the

nursery being untaught in the parlour. This, of course, is very greatly to be regretted, as it leads to the necessity of correction, where no need should have existed, and it should be borne in mind that correction is always galling to a greater or less degree. It is never wise to push a child too much. If it be a backward child, we shall not do much by incessant teasing; and if it be a forward child, we shall probably do harm. Great mischief is often done by taking too much notice of children, and this is another of the evils which are likely to result when young children are allowed to mingle too much with adults. It is a most disagreeable spectacle, we think, to see a poor little child pestered to repeat its few foolish words to a select circle of admiring friends; and the end of such spectacles not unfrequently is a "scene," for the child gets over-excited, and then dissolves in tears. If there is any tendency to tubercular disease, great care ought to be taken not to excite children in this way, for every excitement of this kind causes a flow of blood to the brain, and this may often be the determining cause of tubercular meningitis.

III.—DISEASES OF CHILDREN.

A REFERENCE to the returns of the Registrar-General will be sufficient to prove that the early years of life constitute a time at which we are more vulnerable to disease than at any other period of our existence. The reason for this is twofold. Firstly, because there are several diseases which are of so infectious a nature that we are sure to contract them the first time that we come in contact with their contagion. Such are whooping-cough and measles, which are in no sense properly peculiar to childhood, but are rather to be considered as peculiar to and inseparable from life in crowded communities. Secondly, the proneness to disease in early life is by reason of the highly impressionable nature of the body at that period. Influences which have no effect upon us in adult life may during our early years be productive of very grave results indeed. All the vital processes are very active—the body is growing rapidly. Great results spring from trifling causes, and disease once started is liable to spread with very great rapidity. The processes of dentition, and especially of the first dentition, produce a general irritation and disturbance of the body, which causes very often a slight febrile reaction, during which the child is peculiarly susceptible to all evil influences.

Many of the diseases of childhood may be averted by a very small amount of care in the feeding and nursing of children, and it is not too much to say that the healthy child of a careful and discreet mother may pass through its infancy without ever taking a dose of medicine.

It used to be the fashion to dose children enormously, and even now one may occasionally see in old-fashioned houses a horrible instrument of torture called a physic spoon, with which unhappy children are loaded, as it were, with “charges” of the most nauseous compounds it is possible to imagine.

In the present day, however, we hope that wiser counsels prevail, and that unnecessary dosing has nearly died out. Every unnecessary dose of medicine given to a child is a positive injury; in fact, the giving of drugs at all to children is a harmful proceeding, and is only to be countenanced when it is necessary to avert or counteract some greater

evil. The necessity for giving drugs to children would arise much less often if the rules which we shall lay down for the general management of children were more scrupulously attended to.

It cannot be too generally known that children differ anatomically in many important respects from adults. They are not merely little men and women, but have certain physical characteristics of their own. In the first place, the brain of a child is comparatively far larger than that of an adult, so that if you saw them side by side you could hardly tell, by the size alone, one from the other. Then the forehead of a child projects more than it does in later life. The nasal passages, on the other hand, are naturally small, and a narrow jaw with high-arched palate and enlarged tonsils may prove important factors in narrowing the respiratory inlet. This accounts for the circumstance that children are very apt to breathe through the mouth during the day and snore at night.

The larynx of the child is small and undeveloped, so that any inflammation or swelling of the delicate membrane with which it is lined speedily gives rise to serious symptoms. This affords an explanation of the very high mortality of diphtheria amongst children.

A child's chest is always small, and is often morbidly contracted by rickets. The liver is proportionately larger than in adults, and by a little manipulation can be felt projecting below the ribs. The whole abdomen is large and protrudes to such an extent as to give the unpractised observer a suspicion of dropsy.

The legs of a child are relatively short, and before walking is commenced are naturally bowed, with an inclination of the soles of the feet inwards.

One of the most striking peculiarities of children as compared with adults is the marked excitability of the nervous system. A functional derangement which in a grown person would produce only local discomfort may in a child be accompanied by signs of severe constitutional disturbance. Let us take a familiar example. A man who indulges in some indigestible article of diet experiences, as a rule, nothing more inconvenient than an attack of acidity with a little flatulence, followed by a furred tongue in the morning. A child, on the other hand, if given something a little out of the common is thrown into a condition of feverish excitement, and is found to have a flushed face, a hot skin, and a quick, irregular pulse, the whole not improbably culminating in an attack of convulsions. A man's stomach and liver are purely local organs which may be temporarily disturbed without

upsetting the whole organism, but the mechanism of a child is so finely adjusted that the slightest derangement throws the whole apparatus out of gear.

The diseases of children are on the whole fewer and simpler than those of adults. They suffer from hereditary transmission of tubercle and syphilis, and from the first attack of infectious diseases, such as measles and scarlet fever, for which the child's body furnishes a virgin and congenial soil. They are especially liable to diseases of the brain and spinal cord, and to obstruction of the intestines. They are prone to suffer from bronchitis and inflammation of the lungs in the winter and to attacks of diarrhoea in the summer. Another common disease of children is acute rheumatism, which may result in heart trouble of an incurable nature. On the other hand, they do not suffer from gout or acquired syphilis, or from the effects of over-eating or alcoholic excess, or from the perpetual worry, trouble, and anxiety incidental to business life.

Children undoubtedly die much more readily than do adults. Their powers of recuperation are less, and their vitality is never of a high order. They are very dependent on external agencies. Not only have they to be fed with care and regularity, but they have to be kept warm. They part with their heat quickly and are quickly chilled, so that they are especially subject to catarrhal affections.

The signs of disease in children are different from those we observe in grown-up persons; and when they cannot talk or definitely complain we have to learn to interpret those numerous indications of disease which are afforded by the child's general demeanour.

There is no more valuable indication of disease than the temperature of the body. We do not mean the apparent temperature as tested by the hand, but the actual temperature as measured with a thermometer. A child's pulse may be exceedingly quick, its face may look flushed, and its skin feel hot, and this may all be due to excitement, and after a night's rest the symptoms which caused alarm may have all disappeared. If, however, we find the temperature of the body raised, we know at least that the child requires careful watching until the temperature goes down again. It is not often possible to say at once to what the rise of temperature is due. It may be caused by indigestion, or a passing cold, or inflammation of the lungs, or bronchitis; or one of the children's fevers—as measles, scarlet fever, etc.—may be coming on; but as long as the temperature is raised we may expect anything. The great advantage of taking the temperature is that it gives us early information

of disease, and we are often able to separate a child from its fellows before it has been able to infect the others. We strongly advise mothers of families and others who have the care of children to buy a "clinical thermometer," which may be got from any surgical instrument maker, and learn to take a temperature. The proper temperature of the body is 98.4° Fahrenheit, and anything over 99° must be regarded as fever. From 99° to 102° we should call slight fever; from 102° to 105° , severe fever; and anything over 105° , very severe fever. A temperature is best taken by placing the bulb of the thermometer in the mouth or bowel, and allowing it to remain for two or three minutes. Let us suppose that a child is "out of sorts." We take its temperature, and find it natural; we know that there is nothing infectious, and that it will probably be well in a few hours. If, however, we find the temperature raised, we must be prepared for the advent of something serious, and must not treat the case lightly. We often see the temperature raised by very slight things, such as an indigestible meal; and, in fact, nothing shows the impressionability of childhood so much as the manner in which the temperature rises at slight causes; but nevertheless we are often able to get four-and-twenty hours ahead of a disease, as it were, because the thermometer forewarns us of the impending storm.

Another important indication of disease in children is "fractiousness," or irritability of temper. Healthy children are generally good, and if we find a child become troublesome, we should always suspect some physical cause for its altered manner.

Healthy children are, when awake, lively. They smile, and crow, and throw their limbs about in one never-ending round of delight. When a child becomes listless, and dull, and fretful, we know that it cannot be well, and that it demands attention.

Children when asleep should sleep quietly and tranquilly. If they become restless, and throw off their bed-clothes, and kick, and gnash the teeth, this may be taken as important evidence of impairment of health.

Loss of appetite is, with children, as with grown-up persons, a very common sign of illness.

A child's skin should be clean, clear, and rosy-coloured. If it is muddy-coloured, or blotchy, or if sore places form, or chafing occurs between the folds, or eruptions make their appearance round the mouth, round the bowels, or elsewhere, they may be taken as sure evidence that the child is seriously out of health.

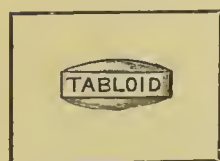
Vomiting is a very important symptom of disease in young children,

and, when persistent, indicates disease of the brain almost as often as it does disease of the stomach.

We will now proceed to discuss the more common diseases of childhood *seriatim*, and in order to facilitate reference we shall take them alphabetically.

BED-WETTING—INCONTINENCE OF URINE.—Bed - wetting, incontinence of urine, or “juvenile incontinence,” as it is sometimes called, is one of the most annoying and troublesome of the complaints incidental to childhood. It is usually first noticed when the child is from seven to eight years of age, and occurs much more frequently in boys than in girls. It is sometimes met with in young women up to the age of eighteen. As a rule, the urine is passed during sleep, the trouble being confined to the night or early hours of the morning, but in boys it may occur during the day as well. In some cases it is hereditary, being met with chiefly in families prone to epilepsy. Not infrequently it seems to be associated more or less definitely with the occurrence of chorea or St. Vitus’s dance. There may be some tangible or physical cause for its persistence. Very often the boy has a long foreskin which cannot be drawn back, and the retention of the natural secretion of the part acts as an irritant or excitant. Possibly the urine is unusually acid and produces a condition of uneasiness, or the little patient may have a stone in his bladder, the very existence of which has never been suspected. Both in boys and girls, worms in the lower bowel by disturbing sleep give rise to this symptom. In more than one instance it has been traced to chronic hip-joint disease. Sometimes it seems to be associated with the process of teething, and not infrequently it is the direct result of bad feeding and consequent indigestion.

The best remedy for this condition is belladonna. It should be given in the form of tabloids. The tabloids to ask for are the *five minim* Tincture of Belladonna Tabloids. They are practically tasteless, and children take them without difficulty. They can be taken without water and eaten like sweets. When the incontinence of urine occurs during the day as well as at night, a dose should



A TABLOID.

be given three times a day. When the incontinence is noticed only at night, two doses a day will suffice—one in the afternoon and one at

night. For the first week the dose should be two tabloids twice or three times a day, as the case may be. During the second week the dose should be increased to three tabloids twice or thrice a day. Children are, as a rule, very tolerant of belladonna, and take it without the slightest difficulty. Should, however, the pupils become dilated, or should the child complain of persistent thirst, the dose should be lessened. The belladonna treatment should be continued for three weeks, and by the expiration of that time a cure is usually effected.

In the case of girls of from fifteen to eighteen years of age, four five-grain tabloids of Bromide of Sodium taken every night at bedtime will usually prove curative.

If, however, there is any physical cause for the condition, such as hip-joint disease or stone in the bladder, no medicinal treatment will prove of the slightest avail until this is removed. In the case of boys with a long foreskin the operation of circumcision will have to be resorted to. It is an operation practically free from danger, and will prove an advantage to the patient in many ways in after-life.

CHAFING—INTERTRIGO.—In situations where the folds of skin in young children are in close contact and overlap, as in the groin and the root of the neck, they rub together and chafe, and cause an irritable and inflamed condition. It rarely arises from chafing pure and simple, but is predisposed to by a want of attention to cleanliness. The collection of perspiration and other secretions in the moist folds of the skin is often largely answerable for the mischief. The treatment is simple. The parts must be kept scrupulously clean, and washed twice a day with warm soap and water. After washing, they must be thoroughly dried with a soft towel or a silk handkerchief, and anointed with lanoline, hazeline cream, or vinolia cream. Another good plan is to insert between the folds of the skin a piece of lint wetted with unboiled white of egg or lead lotion. When the skin is nearly healed a dusting powder composed of dermatol, or of one part of oxide of zinc and three of starch, will be found useful. Attention must be paid to the general health. Good wholesome food, and plenty of outdoor exercise in fresh bracing air are essential.

CHICKEN-POX—VARICELLA.—Chicken-pox is an infectious disease which generally occurs in epidemics, and is met with chiefly in children between the ages of two and six. It rarely attacks adults,

although they occasionally suffer from it. It is very contagious, and the period of incubation is a fortnight—the same as small-pox. As a rule, the sufferer is scarcely ill, but occasionally there is evidence of slight febrile disturbance, such as chilliness, quickness of pulse, loss of appetite, and some elevation of temperature. On the second or third day after the onset of febrile symptoms, supposing them to be noticeable, a few rose-coloured spots appear about the body, and these quickly become vesicles or little watery heads. They increase in number for two or three days, and we find the body covered with a variable quantity of these little watery bladders, which may number as many as 150 in bad cases, and the child looks as if it had been exposed to a shower of scalding water. The spots appear in no regular order, and they are scattered about all over the body and limbs. They may even be noticed beneath the hair on the scalp. It is not at all uncommon to meet with them inside the mouth and cheeks, and on the lips and the sides of the tongue. They appear in successive crops for four or five days, and then are seen no more. The individual vesicles last three or four days, and then begin to dry up, and as they dry they leave a little scab. They often itch badly, and the child often scratches itself—scratches off the scabs and produces sore places which may prove troublesome. The temperature may rise to 102° F., especially if the rash is slow in appearing. After the first twenty-four hours the temperature is rarely over 99·5 degrees.

This disease has to be distinguished from the far graver malady, which it in some degree resembles—small-pox. In small-pox the premonitory symptoms are more severe, and the patient suffers severely from headache, vomiting, and violent pain in the back (*see* SMALL-POX). The eruption in small-pox appears first on the face, and, before it becomes pustular, there is a stage in which the spots feel like a hard lump or “shot” beneath the skin. This stage is absent in chicken-pox. The eruption of small-pox always becomes pustular (that is, *mattery*), while in chicken-pox it remains *vesicular* (that is, watery) except in a few very rare cases. The eruption of small-pox is umbilicated, that is, it is “tucked in” in the centre like the navel or the top of a cottage loaf. This is, however, rarely the case in chicken-pox.

It is often no easy matter to distinguish between chicken-pox and small-pox modified by vaccination. The importance of coming to a correct conclusion cannot be over-estimated, as the outbreak of small-pox in a family, and especially in a school, is a very serious matter indeed. The following practical points will be found useful:—

1. If the eruption follows very quickly the first signs of fever, it is probably chicken-pox.

2. If there are two or three days of feverishness before the appearance of the rash, it is probably small-pox.

3. If there is much pain in the back, it is pretty sure to be small-pox.

4. If the spots are in groups of threes or fives it is small-pox; if they are more generally scattered it is chicken-pox.

5. If the spots are shotty and hard, it is small-pox; whilst if they are soft and disappear on stretching the skin, it is chicken-pox.

Chicken-pox hardly requires treatment of any kind, and happily children get well in spite of anything which may or may not be done for them. They should be isolated and removed from all contact or communication with other children. Keep the child from catching cold, and take care that he does not pick the scabs, or troublesome ulcerations may result. The vesicles should be protected from irritation, and if they occur on parts of the body which are liable to be rubbed by the dress, or to come in contact with neighbouring folds of skin, they should be protected by a piece of soft rag which has been lightly covered with cold cream. The vesicles, especially if irritated, occasionally leave scars about the body.

Although the disease is itself trivial, it often leaves the child in a very weak condition, and we sometimes find that children who have been perfectly well previous to the attack of chicken-pox fall off in health very much afterwards, lose flesh, and become generally sickly. Change of air is the best remedy for this condition. If there is any family tendency to tubercular disease, this is a period at which it is very likely to be contracted.

CHILBLAINS.—Chilblains are a very common source of trouble to children. They consist of red and swollen patches, the result of mild inflammatory action, and they are caused by exposure of the part to cold or damp. They are most liable to occur at the extremities, where the circulation is feeble, and are most common on the toes and fingers. They may occur also on the lobes of the ears, the tip of the nose, and elsewhere. Children who suffer from chilblains are often weak and sickly, of a sluggish and lymphatic habit, and indisposed for active pursuits. The tendency to chilblains is increased by any weakening and debilitating disease, or by bad feeding, or other causes which tend to depress the

health. The mildest kind of chilblain consists merely of slight redness and swelling, accompanied by intolerable itching. In worse forms the skin gets bluish over the swelling, and this is not infrequently followed by the excoriation of the skin, and the "breaking" of the chilblain. Broken chilblains are far more serious than simple chilblains, and are often accompanied by a large amount of discharge, are liable to become exceedingly chronic in their course, and not infrequently they cripple the patient for many months at a time.

The treatment of chilblains is both general and local. The health must be most carefully attended to; tonics should be freely administered, combined with a liberal diet and a fair amount of stimulant. Cod-liver oil—a teaspoonful three times a day after meals; Kepler Extract of Malt—a teaspoonful in milk three times a day after meals; and Beef and Iron Wine—a teaspoonful at eleven in the morning and four o'clock in the afternoon—will be found useful.

The parts which are the seat of chilblains must be kept thoroughly warm, and the child must be encouraged to take as much exercise as possible. The stockings must be woollen, and the boots or gloves warm and roomy, so as not to compress the hands or feet. The parts may be further stimulated by rubbing, and it is often advisable to use some mild stimulating liniment, such as soap liniment or ammonia liniment. Spirit of any kind, such as brandy or gin, may be employed for rubbing the part. Other useful applications are tincture of aconite, tincture of iodine, tincture of *tammus communis*, and calendula ointment; the last-named being made from the common marigold. When the itching is very severe a teaspoonful of tincture of *apis* may be added to a tumblerful of cold water and a small teaspoonful given every hour for five or six hours, or until relief is obtained.

When the chilblains are broken, the parts must be kept at rest, and poultices or warm-water dressing applied, until the discharge ceases. The best dressing after this period is calendula ointment; or resin ointment, or the ointment of oxide of zinc are both very useful.

CHILD CROWING.—(See FALSE CROUP.)

CHILDREN'S PARALYSIS—INFANTILE PARALYSIS—ESSENTIAL PARALYSIS.—The name "essential" is given to this disease because it often happens that no cause for it is detectable. It occurs generally during the period of teething, and cases are not so common after two years of age.

The child may have been quite well previous to the attack, or it may be just recovering from measles or some other disease of childhood, or perhaps it has had a febrile attack accompanied by pain in the joints or limbs, which is spoken of as rheumatism.

Very often the onset is marked by slight feverishness accompanied by indigestion. During the attack the mother or nurse notices that the child is unable to move some of its limbs. Perhaps one arm or one leg hangs helplessly, or both legs and one arm may be affected, and the child may be reduced to a condition of almost complete helplessness. This extreme amount of paralysis generally passes off in a few days, but the limb never completely recovers, and there is always a residuum of paralysis left; this varies in amount. It may be that the whole of one limb is paralysed, or it may be that certain muscles only are affected. The child may be able to use the hand fairly well, but is unable to raise the shoulder; or the leg may be useful to some extent, but there is a certain dragging of the toes, or swinging inwards or outwards of the foot, or a difficulty in bending the knee, or a clumsiness in the movement about the hip-joint. If this residual paralysis does not receive very prompt and very careful attention, it will remain permanent, and if the paralysis be not cured, we are apt to get a shortening and contraction of the non-paralysed muscles, and an unequal action of the muscles working round a joint, and as a consequence a permanent deformity of the joint. *This form of paralysis is the great cause of club feet and similar deformities*, and most of the children whom one sees walking about in irons, with their feet enclosed in various kinds of surgical boots, have suffered from infantile paralysis.

The picture of a patient suffering from this disease is a very sad one. A child—a bright, happy, intelligent child is put to bed one night with little or no indication of illness, or at the most suffering from some slight ailment, and in the morning wakes up paralysed and a cripple. The little girl who only yesterday could run and jump and dance with the best of them is now a helpless invalid, tied to her couch, and incapable of the slightest movement. If you examine the legs—for they are the limbs most frequently affected—what do you find? They are deadly cold, there seems to be but very little life or circulation in them, reflex action is abolished, and not infrequently they are exquisitely tender to



HOLLOW CLUB FOOT (PES CAVUS).

the touch. The child tries to move, but her best efforts are in vain; she has no more control over those palsied limbs than if they belonged to an inanimate object. The physician after a few days applies electrical tests, and points out that both nerves and muscles refuse to act. In this disease the excitability of the nerves to the Faradic current begins to diminish about the third day from the commencement of the illness, and by the end of the week is gone, perhaps never to return. On the application of galvanism to these nerves there is no response, but when the poles are placed directly over the muscles themselves it is found that there is increased excitability, a feebler current than in health sufficing to cause contraction. After a time this excessive irritability passes away, and it is impossible to obtain any response with either form of electricity. The outlook is indeed bad and the ultimate chances of recovery are small, unless recourse be had to some special mode of treatment. It must be remembered that all this has come on suddenly, possibly without any warning or antecedent illness of any kind; or it may follow in the wake of measles, scarlet fever, whooping-cough, or one of those apparently trivial febrile disturbances which are so common in children, and for which we ordinarily do so little. Sometimes there may be a fit, or an attack of convulsions, but this is not usually the case. Even when the paralysis to some extent passes away, one or two muscles, or groups of muscles, fail to perform their accustomed functions; and the child, even if able to get about, walks with a limp, and is a cripple for life. As Professor Erb points out, club foot, loose joints with dangling limbs, and extreme degrees of spinal curvature nearly always owe their origin to infantile paralysis. "The shrunken, paralysed, crippled members, hideously distorted, incapable of use, constitute a burdensome appendage to the body rather than an integral part, and present a striking contrast to the healthy, well-developed, and well-nourished limbs."

The treatment of this paralysis must be prosecuted with the greatest perseverance, and with unremitting attention; and although much patience is demanded of the friends and the medical man, there are few complaints in which patience is so well rewarded.

In the first place the general health of the child must be carefully maintained. It is useless giving a number of medicines at one and the same time, but distinct courses of medical treatment should be instituted. For example, in the winter months, cod-liver oil or the Kepler Extract of Malt and cod-liver oil will be found useful. In the summer, when oily substances are not so easily digested, the patient may be given syrup of the hypophosphites—five drops in a

little water three times a day after meals—or beef and iron wine, or beef and iron wine with quinine.

Next, as to the treatment of the affected limb. If a limb is completely paralysed, it is not used, and it wastes; or, if partially paralysed, it may be of so little use that practically the child does not use the limb at all, and consequently it wastes. If these cases have been neglected, we find that the limb which is the seat of the paralysis is often of less girth, and very often shorter than its fellow. It is blue, and invariably cold. The most essential thing is to keep up the temperature of the limb, which should be kept constantly enveloped in a stocking or a sleeve made of flannel, and quilted with cotton wool. A child should have a change of these—one for night and one for day—and they should be always thoroughly aired and warmed before they are put on. When the child is in bed it should have the limb kept warm by one or more india-rubber hot-water bottles laid alongside of it. In the next place, the limb should be kept thoroughly well rubbed; and night and morning the whole limb, especially the affected muscles, should be systematically shampooed.

The child should be encouraged to use the limb as much as possible, and, if it can manage to do so, it should be made to run about, but, if this be not possible, passive movements must be made for it, so as to avoid the risk of joints becoming distorted and tendons stiffened.

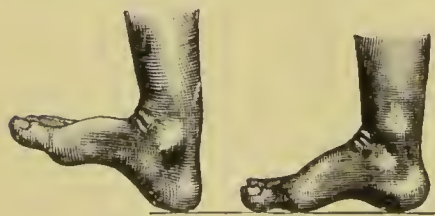
One of the best methods of treating the paralysed limbs is by *massotherapeutics*. The ordinary Turkish bath shampooer, although very useful in his way, should never be entrusted with the care of these cases, as they are far too delicate for his rough manipulation. The same remark applies to the ordinary *masseur* or *masseuse*, who on the strength of a few elementary lessons in “rubbing,” and armed with a worthless “certificate,” carries on his work with little or no regard to the anatomical structure of the parts, and without any real knowledge of the end which it is desired to attain. The only safe plan is to place the patient under the care of a physician who is thoroughly conversant with the subject of *massotherapeutics*, and who is in a position to state exactly what should be done with the view of restoring the functions of the paralysed and wasted muscles. Although the results of treatment are in the long run most satisfactory, progress is of necessity extremely slow, and it may be weeks or even months before there is any marked improvement. After a time, however, the limb will be found to be warmer, whilst the application of an electrical current applied as a test shows that the muscles are gradually gaining power. The great thing

is patience and perseverance, and without this little or nothing can be done. It is worth some trouble, for unless these measures are adopted the sufferer will remain a helpless cripple for life.

A valuable adjunct to treatment is undoubtedly electricity, but to be of any service it must be applied with care and great discrimination, and, above all, with very great patience. The paralysed muscles may require to be sedulously worked at often for many months before much result is obtained. The indiscriminate use of electricity is worse than useless, and it is essential that it should be applied by a medical man who has not only a good practical knowledge of the various kinds of electricity which may be employed, but of the anatomical structure of the parts, and especially of the exact situation of what are called the "motor points" of the limb. The electrical treatment must not be long delayed. "A stitch in time saves nine," and the applicability of this proverb to disease is very general.

Electrical belts and all such appliances are perfectly useless in these cases, and do far more harm than good.

To prevent contraction of muscles, and the consequent deformities, various iron supports, and shoes and similar appliances, have been invented. These are of undoubted service when used with judgment, and with the advice of a reliable surgeon. Their drawback is that they hamper the free movement of the child, and prevent its proper muscular development, and they are rarely justifiable, except in cases where locomotion is scarcely possible without them. We would strongly caution the reader against a class of instrument makers who to the trade of a blacksmith endeavour to add the profession of surgeon. They are ignorant of anatomy and physiology, are incapable of taking other than a mechanical view of the case, are naturally anxious to sell their often costly wares, and by looking at patients solely from their point of view, often condemn them to be crippled for life.



TALIPES CALCANEUS.

(The foot before and after section of the *Tendo Achilles*.)

In neglected cases where much deformity has resulted from the contraction of certain muscles, a surgical operation for the division of the tense tendon or tendons may be resorted to with considerable advantage.

CHOREA.—(See ST. VITUS'S DANCE.)

COLD OR CATARRH.—The general remarks on the subject of cold in this article apply with almost equal force both to adults and children, but it must be borne in mind that children have a special proclivity for catching cold, that their vitality is not of a high order, that their powers of resistance are small, and that they readily succumb to any affection which would produce only a temporary disturbance in an older person. A catarrh in a child may in a very few hours assume a serious aspect. Beginning with a simple cold in the head, the inflammatory condition spreads downwards, giving rise to bronchitis, which, in its turn, may be followed by pneumonia. Possibly, too, the intestines may be attacked, the child suffering from colic and persistent diarrhoea, which rapidly reduces the strength. A cold in a child is always a serious matter, and prompt steps should be taken to check it. As a means of estimating its severity the thermometer should be resorted to without delay. Without this valuable little instrument we are working in the dark, and if properly employed, it will give us a great deal of very useful information respecting the progress of the patient. It need hardly be said that every mother should have a thermometer and should learn how to use it. They are no longer rare or expensive instruments, but can be purchased from any chemist for a few shillings. In the case of a child the temperature should always be taken in the rectum, or lower bowel, and if performed properly this simple procedure causes neither pain nor inconvenience. The child is laid on its face across the mother's knee, and the bulb of the instrument, previously greased, is gently slipped into the aperture. It should be held there for three minutes, and then withdrawn and read off. The temperature should be taken at least every three hours, or, if the fever is high, every hour. A temperature of 99° need excite no alarm, but should it rise above 100° the doctor should be sent for without delay.

And now a few words on the subject of colds in general and the mode in which they are most commonly contracted. A cold, or catarrh, is, in our climate, one of the commonest of human ailments, and young and old seem almost equally susceptible. The parts affected are the mucous membranes, or soft linings of the air-passages, the mouth, throat, stomach, intestines, and eyes. Sometimes one and sometimes another of these mucous membranes is the part seized upon, and we hear of people having a cold in their eyes, nose, throat, windpipe, or bowels. A "cold in the head" is the name given to a catarrh affecting the "frontal sinuses"—two air-chambers lined with mucous membrane, which are situated in the thickness of the skull just above the eyebrows, and communicate with the nose.

The symptoms of a cold are too well known to need description. There is often a slight feeling of "creepiness" or chilliness, and a feeling of dislike for cold. There follows a sensation of dryness and fulness of the part affected. The nose gets "stopped up"; the voice gets husky; the eyes feel tense; and the frontal sinuses are the seat of oppression, which often takes the form of headache. With this there is often a feeling of general malaise, and sometimes a rise of temperature, and a slight increase in the frequency of the pulse. The urine also becomes scanty and high-coloured, and the patient, in fact, is thrown into a state of mild fever. To this stage, the actual condition of catarrh (Anglicè, "a flowing down") quickly succeeds. The mucous membranes, which previously were dry and swollen, begin to run with moisture, which at first is clear and limpid, and then becomes thicker and more tenacious, and of a yellow colour. At this time evidence is afforded as to which way the cold is going to travel. If it is limited to the nose, constant violent sneezing, and an unceasing necessity for the pocket-handkerchief are the chief symptoms. Any increase of hoarseness, or any tendency to cough, indicates that the catarrh has reached the wind-pipe and bronchial tubes, while a loss of appetite, a furred tongue, and possibly diarrhœa, show that the digestive mucous membrane of the stomach and bowels has been attacked. These symptoms may subside in a few days, the patient being restored to his usual health.

Among the causes of "cold," the chief is exposure. A sudden chill or a prolonged exposure to a draught of cold air is sufficient. The most potent cause, perhaps, is a sudden transition from a *hot and foul* atmosphere to a cold one; and probably more colds are caught by coming from an overcrowded church or theatre into the chilly night air than in any other way. There are a good many other ways in which colds may be contracted. Damp clothes, and especially damp underlinen, are a fruitful source of mischief. Dry clothes are bad conductors of heat, and help to maintain the temperature of the body, whilst moist clothing is not only a good conductor, but in the process of drying lowers the temperature of the surface, causes the small blood-vessels of the skin to contract, and throws an excessive strain on the internal organs. Cold draughts act much in the same way, the current of cold air rapidly reducing the bodily temperature and producing a chill. The danger of sleeping in cold sheets is too well known to need comment. Children often contract colds from being allowed to sit on damp grass, wet seats, or cold stones.

People in robust health do not catch cold, and any derangement of

the health, even a passing fit of mild indigestion, seems to lay one open to the evil effects of chills. A tendency to catch cold indicates a "weakness," and diligent search should be made for any indication of a tubercular constitution in such cases. It has been very much debated as to whether or not a common cold is contagious or infectious. When we hear people say that "a cold has been running through the family," or that one child has caught it from another, the usual explanation is that the family has been exposed to a common cause. Nevertheless, there can be no doubt that there are colds and colds, and while we have no belief in the contagiousness of the ordinary cold in the head, we cannot speak so positively about the more severe forms of feverish cold which are accompanied by high temperature and an eruption round the mouth. It is a good rule not to allow a child with a cold to sleep in the same bed with another child.

If a child has not had measles, the symptoms of a cold, especially if the eyes be unduly attacked, are, it must be remembered, the commonest first symptoms of that disease. The appearance of the eruption will soon decide the question.

A child with a bad cold should be given a bath and should then be put to bed. A fire should be lighted in the room, and the window should be left open for two inches at the top to ensure proper ventilation. The temperature of the room should be kept night and day at 64 degrees. These preliminaries having been arranged, medicinal treatment must be commenced. The first thing is to give aconite. For a child a year old dissolve four one-minim tabloids of tincture of aconite in half a tumbler of cold water—sweetened if necessary—and of this give a small teaspoonful every hour. For a child four years old six of the one-minim tabloids should be dissolved in the water; for a child ten years old, eight tabloids. The effect of the aconite is to reduce the temperature, lessen the frequency of the pulse, and moisten the skin. When "cold in the chest" is the prominent symptom, give aconite for five or six hours, and then run on with bryony. The tincture of bryony is used, and of this ten drops should be added to a wineglass of water, and a small teaspoonful taken every hour. When there is thick fetid discharge from the nose, accompanied by heaviness in the head and pains in the ears, substitute tincture of pulsatilla for the bryony, giving in the same way and in the same doses.

The subsequent treatment of a cold consists mainly in the protection of the patient from any further chill, and so preventing the untoward accident of "catching a cold upon a cold," which often leads to severe

and prolonged disease of the lungs or other organs. Keep the child warm. If the weather is cold, it should be confined to the house, or even to its own room. Take care that the functions of the body are all properly performed, and that the diet is light and digestible. Let the patient wear flannel in bed, and have some extra clothing and a hot-water bottle if necessary. A warm drink at night of hot gruel, or white wine whey, or treacle posset with the addition of from ten drops to half a teaspoonful of sweet spirits of nitre, will increase the action of the skin. A fire may be lighted in the bedroom, and the toilet performed directly in front of it. It is advisable that some food should be given before getting up and going through the process of dressing. Take care that the bedroom is well ventilated; many children, as well as adults, owe their susceptibility to cold to sleeping in stuffy rooms.

The occurrence of diarrhœa, cough, great hoarseness, or other untoward symptom, should be a signal for professional advice, for it must be borne in mind that many severe illnesses of children "begin with a cold."

The best preventives for colds are fresh air, exercise, warm flannel clothing, and well-ventilated rooms. The practice of cold bathing is also highly advantageous, but it is on no account to be pushed too far. The bath must generally "have the chill off," and it should always be given before the fire. If the child fail to get its "reaction" and warm glow after it, it should be discontinued.

A child who is liable to cold often requires tonics, and cod-liver oil, Kepler Extract of Malt, and steel wine, those never-failing friends of sickly children, should be administered.

CONSTIPATION.—When a child is constipated, its nurse gives it a dose of purgative medicine as a matter of course, and if this does not have the desired effect the remedy is repeated, and in the very great majority of cases no harm comes from this haphazard method of treating a common symptom. It is well, however, to bear in mind that constipation may arise from causes which are not only unremovable by purgative drugs, but which may be greatly aggravated by their administration. Take rupture, for instance, a complaint which is very common among children. A piece of the bowel comes through a hole in the internal coats of the belly, and cannot get back again—becomes strangulated, as the term is. Now the administration of purgatives in such a case could do nothing but harm; and an examination should always be made, in cases of constipation,

of the patient's groins, to see whether or no a rupture exist, and if such be found, a surgeon must be called in without delay.

Again, the bowels may get twisted inside the belly, and then we get a condition very like a rupture. In all cases of rupture or internal obstruction nothing is passed, not even wind, by the bowels. The child complains of great pain, and after a time vomiting occurs, which becomes very offensive. The combination of constipation, pain in the stomach, and vomiting, should always make one chary in giving purgatives, and it is wise in all such cases to lose no time in calling in the help of an expert.

Children are liable to suffer from a trouble in the bowels which is almost peculiar to them. This is intussusception, as it is called, or the slipping of one part of the bowel into the part below, just as we may draw back the finger of a glove within itself. When this accident occurs, there is usually sudden and intense pain. The child is absolutely constipated, and there are generally eructations of flatus (belching of wind) and vomiting. So far these are the signs common to all cases of complete obstruction of the bowel. At the end of two or three days we are confronted with a very characteristic symptom, viz., the passing of blood and mucus by the bowel. It is not a common thing for children to pass blood from the bowel, and if they do so in any quantity, we should always think of intussusception as a possible cause of it. The part of the bowel which gets ensheathed in the part below passes gradually onwards, so that it may occasionally be felt, or even seen, at the lower opening of the bowel. Sometimes the mass of ensheathed bowel can be felt like a sausage through the wall of the belly. Peritonitis, or general inflammation of the bowels, is a common consequence of this condition, and is the usual cause of death in these cases. Intussusception is not, of course, to be treated by giving purgatives, which would only increase the trouble. Our aim must be to restrain the action of the bowels by giving opiates. The condition may possibly be "reduced" by injecting air into the bowels with an enema apparatus, and distending them until the ensheathed portion slips out of the part below. If it can be satisfactorily made out that the child is suffering from this condition (and attention to the symptoms we have mentioned will generally enable the doctor to come to a right conclusion), it may be advisable for the surgeon to open the child's belly by a slight incision, hunt for the ensheathed bowel, and restore its position with the fingers. There have been many cases in which this has been successfully accomplished. If this is not done, the child

has but a small chance of recovery, although in a few instances a spontaneous cure has occurred. It is certain, however, that if relief is not afforded, either by natural or artificial means, death will result.

In the treatment of ordinary constipation, it is never justifiable to give a dose of medicine to a child if it can be avoided. The practice of indiscriminate dosing cannot be too strongly condemned, for it is certain that it has acted to the prejudice of very many children. A child should be taught as early as possible that the bowels ought to act at regular times, and it should never be allowed to neglect this important natural function. If a child becomes constipated, it is often sufficient to attend to its diet, and give a little fresh vegetable, fresh fruit, or stewed fruit, to excite a slight laxative action. If this be not sufficient, it is a good plan to give an injection of tepid water into the bowel occasionally; this, however, is a measure which should not be too often repeated. Even better than water is the injection of glycerine. From thirty to forty drops should be introduced into the lower bowel by means of a little syringe, which is made especially for the purpose. The glycerine sets up an energetic contraction of the intestines, and the bowels are emptied of their contents in a very few minutes.

If drugs become necessary a small teaspoonful of phosphate of soda dissolved in hot broth or milk is very effectual. Half a grain of sulphur rubbed up intimately with a few grains of sugar so as to form a powder is wonderfully efficacious, especially if given three or four times a day.

Another very popular remedy is the compound liquorice powder, from ten grains to a teaspoonful at bedtime. This compound liquorice powder, which on more than one occasion has been modified in composition, now contains, in addition to the powdered senna leaves and the powdered liquorice root, a small dose of sublimed sulphur and fennel fruit. Another popular laxative is the cascara sagrada, or sacred bark, a variety of buckthorn. It acts mildly and without producing straining or griping. There are several more or less reliable preparations of this drug, some of which are active and nasty, whilst others are palatable and in-operative. Much of the child's comfort in evacuating the contents of the intestines depends on the choice of a good preparation of the cascara, or other laxative, which may be selected. The liquid extract of cascara sagrada will be found as useful as anything, given in doses of from ten to twenty drops mixed with twice the quantity of glycerine. When the constipation is habitual and persistent, recourse may be had to "Hashra Tea," which is a combination of leaves, roots, fruits, and seeds possessing laxative and anti-spasmodic properties. A small

teaspoonful of the herbs should be infused for five minutes in a tea-cup of boiling water, and, sweetened with sugar, should be taken by the child every night at bedtime. In the case of very young children, the time of infusing may be shorter, and only half the quantity should be taken. The dose is easily regulated, and the aim should be to obtain a mildly laxative rather than a distinctly purgative action.

It now and then happens that children have unusually sluggish bowels, which refuse to respond to any of the ordinary purgatives. In these cases systematic massage of the abdomen will often suffice to give tone to the bowel, and restore a healthy action. It is a good plan to use amber oil or lanoline cold cream as a lubricating medium, and to rub the abdomen the last thing at night.

Should these methods of treatment prove unavailing, or should the child go two days, in spite of medicine, without having the bowels relieved, a doctor should be consulted without delay.

CONVULSIONS OR FITS.—Convulsions are very common in children, and few mothers of large families have been without some experience of fits. It is not too much to say that *no healthy child has fits*; but on the other hand, a very slight cause indeed is sufficient to bring on an attack of convulsions in young children. Fits seem, it is said, to take the place of delirium in older persons, and a very eminent authority on children's diseases has remarked that some children are convulsed as easily as some people dream. Dreaming, however, is not always a healthy condition even in grown-up people; and if dreaming in an adult sometimes calls for medical treatment, how much more is a young child who is subject to fits in need of careful supervision?

It would appear that a liability to convulsive disorders runs in certain families. Not infrequently the girls escape, the boys only suffering. The proclivity to this disorder is as a rule most marked during the first two years of life. Strong and robust children are just as likely to suffer as the weakly ones.

Convulsive seizures may, in children, be due to a great variety of causes, such as irritation of the skin from pricks, burns, or wounds, indigestion, flatulence, constipation, worms, cutting a tooth, collections of wax in the ear, retention of urine, fright, disturbed sleep, and many others too numerous to mention.

The seizure may come on quite suddenly, without warning, or may

be preceded by a condition of nervous excitability sometimes described by the term "inward fits."

When a child is taken in a fit it becomes insensible, and often gives a little cry at the moment of seizure. The face is pale or dusky, and there intervene twitchings of the body and limbs. The face is "drawn" or distorted by contraction of the facial muscles; there is squinting of the eyes, and the mouth is drawn to one side, while frothy fluid escapes from the mouth. The legs and arms are the seat of twitchings, and the thumbs are tightly bent over the palms of the hands. When a child is taken with fits, those about it should endeavour to take notice of certain facts which may assist the medical man on his arrival to come to a proper conclusion as to the cause of the trouble. Does it cry out and bite its tongue? How do the fits begin—in the arm, or hand, or leg, or how? How often do the fits recur? Are the twitchings of the body limited in extent, and do they affect one side more than the other? As the medical man is not generally on the spot to observe all these points for himself, he is obliged to trust to the accounts given him by others.

The individual fits do not last long, but they may succeed each other with such rapidity that it is not possible to say where one fit ends and the next begins. A child does not often die in a fit, but this accident does occasionally happen. When death takes place in a fit, it is brought about by suffocation. Children occasionally also die of exhaustion if the fits have been prolonged.

Directly the child is noticed to be in a fit, it should be undressed and put in a warm bath. It should be examined carefully all over. Look for signs of commencing scarlet fever or measles. If the spasms are confined to one side there is probably brain disease. A squint, especially if persistent, is a bad sign.

When a child has fits, the fact may be taken as an indication either that the child is of a weak constitution, or that there is some source of irritation in the child's body which is setting up the convulsions. As to the constitutional condition of the child, this, in the vast majority of cases, is found to be rickety. Search must accordingly be made for every indication of the rickety constitution. (*See RICKERS.*) Although rickets is the condition of all others in which convulsions are likely to occur, we meet with them also in other weakly states of the constitution, as the tubercular or scrofulous. Sometimes convulsions indicate a family tendency to nervous diseases, and it may be found that other members of the family have suffered in the same way, or are liable to neuralgia, or

hysteria, or epilepsy, or some other form of nervous disturbance. If this be the case, and if the fits are repeated, they may, perhaps, be taken to indicate that the child is likely to become the subject of epilepsy.

Having examined into the constitutional condition of the child, we next look for any local source of irritation which may be the cause of its trouble. Fits are most common during the trying period of the first dentition, and some difficulty in cutting the teeth will in a great number of cases account for the symptoms. Do not, however, rush to the conclusion that the gums want lancing. Doubtless this is very often necessary, but, on the other hand, we have no doubt that gums have very frequently been lanced when there was not the least occasion for it. Be sure, therefore, before lancing the gums that they are swollen and tender. This caution is particularly necessary, because children who are liable to fits are very sensitive to any loss of blood, however slight, and even the slight bleeding which follows the lancing of the gums is a matter to be avoided.

If the local irritation be not found in the gums, we must look elsewhere, and, perhaps, the next most common cause of fits is the irritation set up by intestinal worms. The motions must be carefully examined for worms, and if they are detected, the proper remedies be administered. (*See WORMS.*) Any irritation of the intestinal canal is particularly liable to set up fits, and the diet must be strictly inquired into.

Fits are occasionally the first warning of the onset of serious diseases, not only of scarlet fever and measles but of other fevers. The chest should be carefully examined with a stethoscope, so that diseases of the lungs, such as inflammation or pleurisy, may be detected and treated without delay.

Again, convulsions may indicate disease of the brain, but happily this is not often the case. As a rough test, we may examine the fontanel, and if this is depressed, the convulsions are certainly not due to brain disease. If it is prominent, however, one must not conclude that the fits are caused by cerebral disturbance.

Disease of the kidneys is a common cause of convulsions, even in young children, and when convulsions occur during convalescence from scarlet fever, they always cause one to suspect that the kidneys have suffered. A careful examination of the urine will suffice to determine this question. Chemical and microscopical observations will not fail to give evidence, should any disease be present.

We must now discuss the subject of treatment.

The doctor must be sent for at once. Pending his arrival the child should be undressed and placed in a warm bath, a sponge dipped in cold water being applied to the head.

The bowels should be relieved by a soap and water enema, and a teaspoonful of ipecacuanha wine should be given to induce vomiting. After these preliminary measures, the child should be put in bed on its side, and gentle constraint should be employed to prevent injury during the convulsive struggles.

The medicinal treatment is very simple. For a child from six to twelve months old, give a five-grain tabloid of bromide of sodium, crushed and dissolved in a little sweetened water, repeating the dose every hour. For older children, a proportionately larger dose should be administered.

The new remedy, bromide of strontium, is preferred by many doctors, and is given in the same dose.

Should the bromide fail to stop the convulsions, give ten drops of syrup of chloral in a little water.

If the child is unable to swallow, inject the drug into the bowel, taking care that it is retained. Should it be rejected, the dose should be repeated without delay.

It is important not to employ too strong measures. Fits are no indication of inflammatory action, and it is not necessary to apply leeches or blisters. These weaken the child, and increase its danger.

Fits prove fatal by the exhaustion that they cause, and it is therefore highly necessary to keep up the child's strength. In the intervals between the fits it must have some nourishing food—milk, beef tea, or meat jelly; and if the fits are of long continuance, we may add a small quantity of wine, or even brandy. If it is found impossible to feed the child by the mouth, owing to the close setting of the jaws, it may be necessary to give nutritive injections by the bowels, but such measures should be resorted to only under the advice of a medical man.

After the attack is over, the general health must be improved by the judicious use of tonics. The bowels must be carefully regulated, and the milk must be peptonised by means of peptonising powders. The child should be warmly clad, and should be taken out daily in the fresh air.

CONSUMPTION.—(*See* TUBERCULOSIS.)

COW POX.—(*See* VACCINATION.)

CROUP.—There are two kinds of croup—(1) croup proper, and (2) false or spasmodic croup. The latter, which is technically known as *Laryngismus stridulus*, is a perfectly well-defined and distinct disease, and will be discussed in due course.

Respecting croup proper a good deal of difference of opinion exists, and a good many people say that there is no such thing at all. They maintain that what we have been accustomed to call croup is nothing more nor less than that terrible disease diphtheria. They say that when the larynx only is attacked it is called croup, and that when the wind-pipe is involved as well it is called diphtheria, but that it is essentially one and the same disease. The weight of evidence certainly seems to favour this view. It is possible that there may be some cases of membranous croup which are not diphtheric in origin, but they are certainly few in number.

When a child is said to be suffering from croup, the first thing is to ascertain whether it is true croup or false croup. If it is false croup, that is a purely spasmodic affection, and we know how to deal with it. If it is said to be true croup, you may be pretty certain that it is not croup at all, but that deadly diphtheria. The recognition of this fact makes all the difference in the world. It does not do to mistake a terribly infectious disease like diphtheria for the comparatively harmless croup. It is best to call things by their proper names, and to take precautions accordingly. Croup, if it is not false croup, is diphtheria under another name. (See SPASMODIC FALSE CROUP and DIPHTHERIA.)

SPASMODIC FALSE CROUP — CHILD CROWING — SPASM OF THE GLOTTIS—LARYNGISMUS STRIDULUS.—This complaint differs essentially from croup, and must not be confounded with it. It is a convulsive disorder which attacks the muscles of respiration. It is essentially a children's disease. It occurs in new-born children who are in other respects apparently well, and in children between the ages of six months and one year, who are the victims of rickets. It is a disease closely associated with rickets. The occurrence of the attack is predisposed to by exposure to foul air in hot, badly-ventilated rooms. It is much more common in winter, when the doors and windows are shut to keep out the cold, than it is in summer, when there is plenty of fresh air in the house. The exciting cause of an attack may be any irritant, such as disordered digestion, irritation of the stomach or bowels, or swollen and tense gums. It is serious in very young children,

and may, if prompt measures are not taken, end fatally. Persistent lividity of the face is a bad sign.

The symptoms of laryngismus stridulus are easily recognised. There is a sudden suspension of respiration; the child wakes from its sleep, starts up, and struggles for breath, then becomes unconscious, and lastly, as the spasm relaxes, draws in its breath with a loud crowing noise, which is absolutely characteristic. The suspension of respiration may endure so long as to cause the child's face to become pale and livid, but directly the breath has been drawn, this symptom disappears and the child is well again. The attacks are renewed again and again at uncertain intervals. During the attacks there are usually observable curious contractions of the fingers and toes which are technically known as the *carpo-pedal contractions*, and are characteristic of this disease. The toes are bent down and are rigid, and the thumbs are tightly bent across the hands. The disease may be looked upon as indicative of an impaired constitutional state rather than as dangerous in itself, but it must be borne in mind that children sometimes die during a spasm. This is an accident which is especially liable to occur when the patient is of tender years. Recovery, however, is the rule, and death is the exception.

This disease has to be distinguished from true croup, and the distinction is generally not difficult, for not only are we guided very often to a right conclusion by the spasms of the hands and feet, but the fact that the child is absolutely well between the attacks of crowing is sufficient to prevent any mistake. In true croup the voice is either hoarse or reduced to a whisper, and the noise of the respiration is high-pitched and hissing.

The treatment of spasmodic false croup must be directed to the prevention of the spasm, and the curing of the constitutional condition which is the cause of it. The spasm is liable to be brought on by any excitement, any quick movement of the child, or anything which may be likely to rouse its emotions or passions. Children, therefore, who are liable to this disorder must be kept very quiet, and should be separated from any of their little companions who are likely to be too noisy or rough.

A great deal may be done in the way of medical treatment. An attack may often be immediately cut short by holding under the child's nose a bottle of strong smelling salts. The remedy is simple but wonderfully efficacious. Another good plan is to take a sponge wrung out of hot water, and hold it firmly pressed against the child's throat, immediately under the chin. Sponging with cold water will nearly always

stop the spasm. The child should be stripped and made to sit in a warm bath, whilst lukewarm water—at a temperature of about 65°—should be rapidly sponged all over the body.

If the attacks are very frequent, bromide of sodium should be given. For a child a year old a five-grain tabloid of bromide of sodium should be crushed and dissolved in two tablespoonfuls of sweetened water; one tablespoonful being given at once, and the remainder two hours later. This dose may with advantage be repeated three times a day, or even oftener. Bromide of strontium is even more efficacious, and should be given in the same dose and in the same way. It, like the bromide of sodium, is sold in five-grain tabloids.

Syrup of chloral is another good remedy, and may be added to the bromide solution. The dose for a child one year old is six drops three times a day.

Musk, although an old-fashioned remedy, is well worth trying in obstinate cases. For a child a year old, one-third of a grain powdered up with a little sugar of milk may be given every six hours.

The custom of anointing the chest with a stimulating oily preparation has much to commend it. Chatteris oil is especially recommended for this purpose, and in these cases.

There are certain other steps which may be taken with advantage with the view of lessening the susceptibility to the recurrence of the attacks.

The diet must be most strictly attended to, and a careful surveillance must be kept lest the child get hold of any of the edible trash which is such a potent cause of sickness in children. Until a child has cut its first teeth it ought to be kept like a baby, and ought not to be allowed to be nursed at meals with the rest of the family, and be fed upon a variety of things which its young stomach is not able to digest. As soon as a child is weaned its diet should consist almost entirely of milk and meat broths, and the less starchy matter it has the better. There is no greater mistake than to cram a child with patent foods, which are so much in vogue at present. If the child vomits curdled milk, or passes white curdy matter from the bowels, a little lime water should be mixed with the milk to counteract the undue acidity of the intestinal secretions. About three tablespoonfuls of lime water to every pint of milk is generally sufficient. A still better plan is to peptonise all the milk. It is a little trouble at first, but it is worth it. If the bowels are confined, a mild alterative purgative such as the rhubarb and soda tabloids, may be given,

and the motions should be carefully watched for any signs of worms or other cause of irritation.

Next look to the teeth. It used to be almost a matter of routine to lance the gums in every case of laryngismus, but some discrimination is necessary before this measure is taken. Look to the mouth and ascertain if the child has the proper number of teeth for its age (*see* TEETHING), and if it has not, ascertain whether the gums are being pressed upon and irritated by the teeth coming up beneath. If this is the case the gums are generally reddened and swollen, and so tender that the child will cry out when they are touched. It is not uncommon to find the glands under the jaw enlarged and tender. If these signs are present then there need be no hesitation about lancing the gums; but if they are not present, such a proceeding is unnecessary, and is merely a useless infliction of pain.

Examine carefully into the child's constitutional state, and examine its head, bones, joints, and back, for any sign of rickets, for in nine cases out of ten such signs will be found. This being the case, we must look to the diet, which should be as nourishing as possible, and great benefit will be derived from the administration of cod-liver oil, Kepler Extract of Malt, and steel wine twice a day after meals. It is important, too, that these children should get as much as possible into the open air. It is a mistake to suppose that their throats are delicate, and that they need coddling; such is not the case. They should be warmly wrapped up, and taken out regularly, being encouraged, if old enough, to run about. Sometimes the child, instead of being rickety, is scrofulous, and in such cases the administration of iodine (half a teaspoonful of the syrup of the iodide of iron in water) is advisable. Sea air in scrofulous cases is a most valuable adjunct to treatment, and, if possible, the child should have the benefit of it.

DIARRHŒA AND DYSENTERY.—The subject of diarrhœa in children is a very important one, and deserves serious and careful consideration. A very large number of deaths, both in infancy and early childhood, may be ascribed to this cause. Children bear purging very badly indeed, and anything which interferes even temporarily with their weak powers of digestion soon lowers their vital powers and places them in a position of extreme danger from which they rally with difficulty.

It must be borne in mind that the bowels of very young children naturally act three or four times in the twenty-four hours, and that the

motions are generally loose. It must not be rashly concluded that a child is suffering from diarrhœa, but if a child of less than three months of age has an action of the bowels more than thrice, or one over that age more than twice, in the day and night, we shall not be wrong in concluding that the motions, provided they are not hard, are excessive, and need checking.

It too often happens that the first acquaintance which children make with this world is marked by diarrhœa, produced by ill-advised measures. Many ignorant midwives have a notion that the first and best thing to do with a newly-born baby is to give it a mixture of melted butter and sugar, in order, as they term it, to "cleanse its bowels," but in reality to give it indigestion, to cause it to be early acquainted with the colicky pains of wind, and to trouble its friends with an early-developed attack of diarrhœa. This first false step leads to ignorant and injudicious tinkering with drugs, and the unhappy innocent is hurried on by its ignorant and foolish protectors from trifling maladies to those which lead to a permanent injury of the health.

Improper feeding is one of the chief causes of diarrhœa in children, the food being excessive in quantity or unsuitable in quality. Children are frequently the victims of much wrong feeding, the case usually being that the food given to young children is of too complex a nature and such as they are unable to digest. The proper food for children prior to the cutting of the first teeth is the mother's milk, which they should receive at regular intervals. A child of three months old and under should be fed regularly about every two hours, and less often during the night. It should be kept at the breast until it shows signs of having had enough, when it should be taken away and not fed again until after its regular and proper interval. It rarely happens that children who are fed carefully in this way cause any trouble whatever. If the mother has plenty of milk, it should be fed on nothing else, for the first six or seven months at least. It should have no other milk, and no starchy or farinaceous food is on any account to be given until the teeth begin to appear. Milk is the proper food of children before they cut their teeth, and it has been conclusively proved that they are unable to digest starch in any form—bread, baked flour, biscuits, patent foods, or corn flour. If the latter be given they are very likely to do harm, and they cannot nourish the child. If the mother have no milk the child must be fed on cow's milk diluted with one-third part of warm water. The meal for very young children must not be too large: and if under three months, about four ounces (eight tablespoonfuls) of milk

diluted as recommended, and sweetened with a knob of sugar, may be given at a time.

A common cause of diarrhœa in children is the pernicious custom of preparing in the morning the food for the day's consumption. Milk, especially when mixed with starchy matters, keeps badly, and rapidly undergoes fermentative changes, and in a few hours becomes acid and quite unfit for use.

When children begin to cut their teeth, and weaning has commenced, a little farinaceous food may be given; and when the child is a year old a small quantity of beef tea may be added to the diet; but until a child is two years old (until, that is, all its teeth are cut), it should be fed entirely on milk, beef tea, or broth, and bread or biscuit. When children about two years old and upwards are brought to the doctor with diarrhœa, and in answer to the doctor's question, "What are you feeding him on?" the mother replies, "The same that we have ourselves," one may be certain that the cause of the diarrhœa is want of judgment or ignorance.

Great care must be taken that the milk is neither sour nor putrid. Milk is a very sensitive fluid, and requires to be kept most carefully in a cool, clean place; for if it be kept in a dirty pantry or a hot stuffy room, the milk is far more likely to become unwholesome than otherwise would be the case. If the milk is sour the child is sure to have diarrhœa. In hot weather, it is a good plan to boil the milk before giving it, and it may be diluted with lime water instead of simple water. Whenever a child passes white curds from the bowel, or vomits them, we may be sure that the addition of lime water to the milk is one of the remedies needed.

It is an excellent plan to have all the child's milk peptonised. To a quarter of a pint of milk, add an equal quantity of water, and then a quarter of a peptonising powder. Shake it up and then place it in a jug or bottle in front of the fire for twenty minutes, after which it should be boiled and sweetened with half a teaspoonful of Kepler Extract.

There is no objection to the employment of condensed milk if care is employed in its selection. The fact has only recently come to light that much of the condensed milk sold in the shops is, in reality, nothing but condensed skimmed milk, and is practically useless as a food. Even when the fact is notified that the tin contains only "skimmed," the words are printed purposely in such small letters as readily to escape observation. In many cases the milk is not only "skimmed," but the

abstraction of the fat is accomplished by a "separator," an instrument well named, since it removes from the milk almost every particle of fat. In one specimen of so-called condensed milk, examined by the analyst of the *British Medical Journal*, the deficiency in fat amounted to no less than 90 per cent. It must be remembered that condensed "milk," made from milk from which the fat has been partially or almost wholly removed, cannot with certainty be distinguished from condensed whole milk, except by a full chemical analysis, so that the purchaser is practically at the mercy of the manufacturer. It is difficult to get a thoroughly reliable condensed milk, but some of the numerous brands which are now before the public are undoubtedly prepared from genuine whole milk of good quality, and are admirably adapted for the feeding of infants and young children, and are established favourites, not only in this country, but all over the Continent, where they can be procured without difficulty. But, as we have said, the purchaser cannot be too careful in his selection.

Feeding-bottles require more attention than generally is supposed. Directly a bottle has been used it should be put into hot water (tube as well as bottle), where it should be allowed to soak for some time, and should be then rinsed and put to drain in a clean, airy place until it is wanted again. The smallest particle of sour milk sticking to the cork or to the tube of the bottle is sufficient to cause the whole of the milk put into the bottle to turn sour. Always smell both the bottle and the stopper before filling it, and on no account put fresh milk into a bottle which has the least odour of sourness about it.

One of the most valuable inventions of modern times is a feeding bottle in which a thermometer is embedded in the glass. One of the greatest difficulties in the feeding of young infants who cannot take the breast is the regulation of the temperature at which the food is given. The most intelligent nurse can only guess the temperature approximately, whilst it is a subject on which servants have the most confused ideas. This arrangement affords a most perfect protection against the possibility of scalding. The thermometer affixed to the bottle at once records the temperature. Should the food be poured into the bottle when too hot it must be left to cool, after being well shaken, until the indicator falls to the temperature of breast milk, as indicated by the mark on the bottle. The bottle is also graduated in ounces, so that it registers not only the temperature, but the quantity of food taken, so that the danger of

over-feeding is avoided. These feeding-bottles are, as has been said, by no means expensive.

After a child has been fed, its mouth should be immediately washed, and on no account is the child to be allowed to go to sleep with the drops of milk unwiped from its mouth or soaking into its bib or dress. Care must be taken, too, that the nipple of the breast of the nurse (in cases of suckling children) is not only free from disease but scrupulously clean.

Sometimes the cause of the 'diarrhœa is to be found in the state of health of the mother or the nurse, and a change of nurse is often sufficient to arrest the troubles of the child. The condition of the teeth must be looked to, and, if necessary, the gums may be lanced. If the child have *thrush*, the suitable remedies must be used. (*See THRUSH.*) The mother must always bear in mind that an obstinate diarrhœa may be caused by typhoid fever or by tubercles in the bowels. Diarrhœa is one of those troubles which should never be allowed to go on unchecked or without giving the child the benefit of skilled attention, if possible.

There is a special form of diarrhœa to which children are very susceptible. This is known as *Choleraic Diarrhœa*. It prevails largely during certain months of the year, and sometimes assumes almost an epidemic form. The number of deaths in young children from this cause during the late summer and early autumn months is appalling. At times when cholera is prevalent special precautions should be taken. The drains should be seen to, the purity of the water supply and freedom from sewage contamination should be investigated, and, above all, the milk should be boiled. The removal of all decaying and decomposing refuse matter from the soil round the house should receive special attention.

In choleraic diarrhœa persistent vomiting is one of the prominent symptoms. It may be almost incessant, so that the child is precluded from taking nourishment. This, combined with the diarrhœa, so exhausts the little patient, that in a few hours the illness may assume a very critical aspect.

There is another variety of diarrhœa to which young children are liable, and that is the mild dysentery with which they are often attacked in the autumn. The difference between simple diarrhœa and dysentery is this, that in the latter disease there is an inflammatory condition of the lining membrane of the large bowel which requires special treatment. This form of dysentery which, although bearing the same name, is hardly to be compared with the terrible forms of dysentery

met with in the tropics, is accompanied usually by slight pain and some tenderness of the bowels. The belly is sometimes distended and sometimes sunken in, and the child passes from its bowels not only the ordinary motion, but slimy mucus, and even blood as well. It is the passing of blood and mucus from the bowel which points out the real nature of the affection.

The cause of this dysentery is, in the first place, improper feeding of all kinds, and the remarks which we have made *apropos* of diarrhœa are equally applicable to dysentery. It seems to be most common in low-lying districts, and it is probable that a malarious condition of the atmosphere is occasionally to be regarded as one of the causes. The administration of decomposing vegetable matter and unwholesome fruit to children, which is particularly liable to happen in the autumnal season, is undoubtedly a potent cause of this affection.

Bad water is also a cause of dysentery, and the source of the water supply should be looked to in every case, so as to find whether or not the water has been contaminated by sewage, or by any other decomposing matter, whether animal or vegetable.

The medicinal treatment of diarrhœa next demands our attention. For choleraic diarrhœa there is nothing like camphor. Five drops of essence of camphor should be mixed with a wineglass of milk containing a fourth part of brandy, and of this a teaspoonful should be given every quarter of an hour for the first hour, and then hourly until reaction sets in. The patient should be kept in bed and hot-water bottles should be applied to the feet and legs.

For the ordinary summer diarrhœa of children not attended with vomiting, perchloride of mercury is an excellent remedy. The one-hundredth of a grain Tabloids of Perchloride of Mercury are the things to ask for. Dissolve one of these in a wineglassful of water, and give the child a teaspoonful every hour for six hours or until the diarrhœa stops. Perchloride of mercury in larger doses is poisonous, but these very small doses may be given with safety, even in the case of a very young child.

In many cases of diarrhœa, bismuth is an excellent remedy. One of the five-grain Subnitrate of Bismuth Tabloids should be crushed up in a wineglass of milk, and a teaspoonful of this should be given every ten minutes.

When there is flatulence or pain in the stomach, a teaspoonful of cinnamon water should be given every hour.

Hot fomentations to the stomach usually do good, and can do no harm.

If the diarrhœa is not checked almost at once, the doctor should be sent for. It is impossible to over-estimate the importance of obtaining skilled medical advice at the earliest possible moment.

We have said nothing about the administration of laudanum and other preparations containing opium; for, although they are in many cases of undoubted value, a good deal of care and discretion is needed for their successful administration, and unless the symptoms of the individual case are known more harm than good may be done with them.

Children who are liable to attacks of diarrhœa should be carefully braced up in the intervals of the attacks. Beef and iron wine is an excellent remedy. This admirable restorative was originally suggested by the late Dr. Parkes of Netley. In its preparation the iron is dissolved in wine deprived of its tannin, and the specially prepared beef juice is then added. The dose for a child a year old is a teaspoonful in a little water twice a day, whilst for a child four years of age a tablespoonful may be given.

A useful article of dietary for children who are subject to diarrhœa is koumiss. The original koumiss was made by the Tartars, who fermented mare's milk; but that is practically unprocurable. The koumiss prepared in this country by fermenting cow's milk is apt to turn sour, and is difficult to manage. There is, however, a very good substitute for koumiss, which is made as follows: "Fresh cow's milk, six ounces; fresh cream, half-an-ounce; Kepler Essence of Malt (not the Extract), one tablespoonful; and Rosbach water, sufficient to make half a pint." This is palatable, nutritious, and refreshing, and is taken by children with weak digestive powers in doses of two tablespoonfuls or more without difficulty.

DIPHTHERIA.—There is no more terrible disease than diphtheria. It is not confined to children, but from the frequency with which it attacks them, ranks as one of the most prominent and serious diseases of infantile life. It is an acute contagious disease, which attacks various mucous surfaces and covers them with a tough and leathery membrane. It is always attended with and followed by marked anæmia and prostration of the strength. It often occurs in epidemics, and one attack affords no protection against the recurrence of the disease. It is a general constitutional disorder, and the affection of the throat is simply a local expression of the disease, analogous to the rash of scarlet fever or measles. It attacks

not only the larynx and windpipe, but may involve the gullet and other contiguous structures. In former times, diphtheria, when it attacked the larynx only, was often spoken of as "membranous croup"; but the fact is now generally recognised that croup and diphtheria are one and the same disease. This, of course, does not apply to spasmodic croup or laryngismus stridulus, which is not contagious, and is a much less serious affection.

There seems to be a special proclivity in certain families to the occurrence of diphtheria. In an epidemic we frequently notice that certain households suffer severely, whilst others escape. The brunt of the disease nearly always falls on the younger members of the family. Children under one year of age frequently escape, but from that age up to the age of five or six, the majority of cases occur. A special delicacy of the throat, such as is often observed, undoubtedly favours the development of the disease.

The poison of diphtheria may be inhaled with the air, but in a very large number of cases it is swallowed with contaminated water, or with milk which has become infected. Insanitary conditions greatly favour the spread of the disease, and when diphtheria breaks out in a house it is a pretty good proof that there is something the matter with the drains. The germs of the disease are apparently very tenacious of life, and many epidemics have followed the opening up of old cesspools without adequate precautions, and even the disturbance of mud and filth in the bed of a creek or river. The disease with which diphtheria has the greatest affinity is undoubtedly scarlet fever, and epidemics of these affections often run side by side. There seems to be an impression that diphtheria is of more frequent occurrence than formerly, and the lesson it teaches us is, that even now, with all our improved sanitary appliances, we are not half so careful as we ought to be to keep the air of our houses pure and free from contamination. The great points are to see that all the drains are properly trapped, that the cisterns are cleaned out at frequent and stated intervals, and that all the milk is scalded. Freedom from alcoholic and other excesses, and the maintenance of a high standard of general health, are important factors in warding off not only diphtheria but all contagious diseases.

We must now consider the symptoms of the disease as it attacks children. As we have already pointed out, diphtheria is characterised by an inflammation of the windpipe and adjacent structures, accompanied by the formation and growth of a thick leathery membrane. The membrane which grows in the windpipe makes it narrower, and consequently

the ingress and egress of air from the lungs is very greatly impeded. In addition to this mechanical obstruction, there is superadded a spasm, caused by the irritation of the inflammatory action, for during the continuance of diphtheria there is always more or less difficulty of breathing, and this permanent difficulty, aggravated by spasm, renders respiration at times an impossibility, and if this impossibility lasts more than a few minutes, the child dies of suffocation. The windpipe of children is narrower than that of adults, and hence it is that any tendency towards inflammation of it is so much to be dreaded.

The child usually goes to bed tolerably well, or perhaps it has complained, or its friends have noticed, that it has a slight cold, or speaks a little hoarsely. There is also some heat of skin, and perhaps a little thirst and headache. Having gone to bed with no symptom that could cause alarm, it wakes up in the night with all the torments of the fully-developed disease. The windpipe may be tender to the touch, but this is not always the case. The child struggles for breath, and clutches at its throat in an agony of terror. There is a loud, clanging, peculiar cough, and the noise of the breath passing and repassing through the obstructed air-tube is high-pitched and hissing. The expression is anxious, the eyes are suffused, the face is purple, the whole body is bathed in perspiration, and the voice whispering and hoarse. The child seems on the point of suffocation, when the paroxysm subsides, and it becomes quiet again and tolerably comfortable. It must be borne in mind that these paroxysmal increases of suffocation are due to spasmodic narrowing of the windpipe excited by the inflammation. The remission of the symptoms is due to the subsidence of the spasm, and not to the removal of the membrane, which is the *fons et origo* of the trouble. These paroxysms last from half a minute to half an hour. The liability to their occurrence is much greater during the night than during the day; and the parents, who see their child lying tranquilly throughout the day, or without any great evidence of suffering, are apt to be buoyed up with the delusive hope that the disease is subsiding: but when with the return of night the spasm returns, and returns probably with increased severity, this hopefulness is cruelly dissipated.

The urgent difficulty of breathing is usually attributable to the spasm, but occasionally the growth of membrane may be so great as absolutely to obstruct the opening of the windpipe. The amount of obstruction present is estimated by the degree to which the chest sinks in during the attempts to draw the breath. In health, the chest walls bulge out during the act of inspiration; but if the entrance to the windpipe is

obstructed, they fall in, and the degree to which they do so is a measure of the amount of obstruction. The sinking in of the chest is always considerable during the attacks of spasm, but in the intermediate periods it may not be noticeable, and the inference we draw is that the amount of membrane present is not great; but if in the intervals between the spasms the chest walls recede, we conclude that the obstruction is considerable, and our apprehensions are consequently serious. It is not always feasible to see the membrane in the throat. On looking into the throat we see that it is red, and perhaps swollen, and if we catch sight of the tip of the epiglottis—the lid covering the top of the windpipe—we see that it too is in the same condition.

Not infrequently children cough up great pieces of the membrane, which resemble tough pieces of moistened wash-leather. This is usually followed by relief, but the membrane often grows again, and in a few hours the child's condition is as bad as ever. The disease if it terminates fatally, usually does so by the end of two or four days; but if the child survives and lives into the second week, the chances of its recovery are much greater. Very often we find the glands along the side of the neck enlarged.

Most of the complications of diphtheria are referable to the lungs. It is not unusual to find bronchitis, and if the bronchitis is caused by the growing downwards into the lung of the false membrane, it is necessarily a serious matter, and often results in collapse of great portions of the lung. Pneumonia, or inflammation of the lung itself, is a very serious complication, and is usually fatal.

An attack of diphtheria is not infrequently followed by paralysis. Diphtheritic paralysis is by no means confined to severe cases, for a very mild attack—if diphtheria can ever be spoken of as being mild—may be followed by paralytic symptoms of a most pronounced description. The paralytic complications are usually observed from two to five weeks from the beginning of the illness, or to put it in another way, from one to two weeks after the disappearance of the membrane from the throat. One of the commonest forms of paralysis is that affecting the soft palate and pharynx, so that when the child attempts to swallow, an attack of coughing is excited, and fluids are forced out through the nose. Another common form is paralysis of the muscles of the eye, so that the child not only squints, but sees double. Paralysis, or partial paralysis of the limbs is often noticed, the legs being affected more frequently than the arms. The paralysis is nearly always double, that is, it affects both sides of the body, although the loss of power may be more pronounced

on one side than on the other. The occurrence of paralysis in any form must be regarded as a serious matter, and it may be many months before the child is fully restored to health.

It is not easy to foretell the result of an attack of diphtheria; very young children are less likely to recover than older ones, so that the older the child the better the prognosis. It is said that diphtheria is especially fatal when it follows measles. The presence of any of the complications, especially pneumonia, is very serious. It should be borne in mind that children occasionally die quite suddenly in diphtheria, apparently from the shock caused by sudden closure of the windpipe. A second attack is less likely to be fatal than a first.

The disease of all others with which diphtheria is most likely to be confounded is the so-called *false croup* or *laryngismus stridulus*, which is quite a different complaint, and consists of spasm of the windpipe alone, without inflammation of any kind. The noises in the throat in laryngismus very closely resemble those of diphtheria, but the paroxysms are of shorter duration, and it is generally accompanied by peculiar contractions of the fingers and toes, which are not observed in diphtheria. Laryngismus is almost limited to children of rickety constitution, while diphtheria attacks constitutions of all kinds and respects none.

We must now consider the question of treatment. It is hardly necessary to say that on the very first sign of suspicious illness, the doctor should be summoned without a moment's loss of time. In the absence of skilled medical assistance, everything must be done to support the strength of the child in order that an opportunity may be given of combating the terribly depressing influence of the disorder.

No medicine of a depressing or exhausting nature should be administered, and nothing must be given which will lower the tone of the heart's action. Sometimes emetics, such as ipecacuanha wine, are useful, but their administration is not unattended with danger. The hypodermic injection of pilocarpine is sometimes useful.

Probably the best and safest plan is not to rely much on drugs, but to endeavour to support the strength of the patient. Strong beef essence, yolk of egg and peptonised milk are our sheet anchors. Old brandy or whiskey may be given freely. A child five years old will take thirty drops of brandy every two hours with marked benefit. The omission to administer alcohol in these cases involves a serious responsibility.

A bronchitis kettle, by moistening the air of the room, allays spasm, and is a great comfort to the patient. The addition to the water in

the kettle of a few drops of pure terebene or pinol is most useful. An even more useful apparatus than the common bronchitis kettle is the "Complete Steam Atomiser." This instrument works by means of a spirit lamp, so that it may be used in summer when a fire in the room might be inconvenient. It is very substantially made, and there is no fear of its bursting. By its aid any medicated substance may be applied to the throat or diffused through the air of the room.

If the child is in urgent danger of dying of suffocation, it is necessary to open the windpipe by the operation of *tracheotomy*. This is always a very serious proceeding, but serious as it is there should be no hesitation in consenting to its performance, for it assuredly gives the child a chance of life. It must be remembered that the windpipe of the child is blocked with a membranous exudation which it has failed to remove by the act of coughing; that it is not only impossible but inadvisable even to attempt to remove the membrane through the mouth by inserting forceps into the windpipe; but it is certain that if some plan be not devised for getting air past the obstruction into the lungs, death must inevitably result.

The operation of tracheotomy consists in making a small cut into the windpipe below the obstruction, and inserting a tube through which the child is enabled to draw air into its lungs. This operation is one which to the uninitiated seems terrible, and during its performance the child had better be left entirely to the care of the medical attendants and nurse, who are accustomed to perform and witness operations of all kinds. In many cases it is quite safe to give a little chloroform to lessen the sufferings, but even if this be not thought advisable, the friends will find some consolation in the fact that the sensibility of the little patient has been so deadened by the suffocative process to which it has been subjected that it will feel but little, and being quite unconscious of what is going to be done to it, it is saved all the terror of apprehension, which so increases the sufferings of adult patients. If the operation is successful the relief afforded by it is one of the most gratifying testimonies to the value of the surgical art which it is possible to witness. The child, who a few moments previously had been struggling for breath in an agony of terror, with a face purple from suffocation, suddenly finds that air can be drawn without difficulty into its lungs. The agony vanishes, the natural complexion returns, the child is able probably to take nourishment, and after some expressions of satisfaction it commonly falls into the caresses of "Nature's soft nurse."

Unhappily, the relief afforded by tracheotomy does not always secure

the recovery of the child. There are still rocks ahead of which the friends should be well aware. The most common cause of death after tracheotomy is bronchitis or inflammation of the lungs, and the best method of guarding against this is to exercise great care that the air of the room in which the child lives is kept properly warm and moist. Ordinarily, the air which we breathe is warmed by passing through the hot cavities of the mouth or nose, which is not the case when the air is admitted to the lungs through a tube in the throat, and it often happens that bronchitis is set up or kept going by the irritation of cold air striking on the lungs.

Sometimes the child dies of exhaustion after tracheotomy. This is often the case when the operation has been too long delayed, which is a common result of the reluctance of the friends to give the necessary permission for its performance. The child has been so weakened by disease that its power of recovery is too slight to allow of its receiving any advantage from the operation; but even in such cases the sufferings are very much lessened, and the friends are spared the spectacle of a helpless child dying in the greatest agony. If tracheotomy has been performed, great care must be taken that while the child is wearing the tube in its throat it be kept scrupulously clean. The tube should be washed or changed every day, and the edges of the wound should be carefully cleansed of all discharge which may accumulate round them. If the operation be successful, it will be found that as recovery advances the obstruction in the windpipe diminishes; and if the patient be taught to close the orifice of the tube with the finger, or if the tube be closed for it, it may be able to cough up the portions of false membrane as they loosen and separate. When the child is able to breathe when the orifice of the tube is stopped, *i.e.*, when the child is able to draw air through the top of the windpipe and past the tube, the tube may be removed, and in a very few days the opening which was made for its insertion will heal and close.

During convalescence from diphtheria, great care must be taken that the child is not exposed to cold, for the exposure of the scarcely-healed windpipe to the cold air may bring about spasm, and perhaps a return of the trouble.

During an attack of diphtheria the child should be kept separated from its fellows, as the risk of contagion is very great; and it should not be allowed to mix again with its companions till every symptom has disappeared. Sea air is of great service in restoring the strength after diphtheria, as after other exhausting diseases, but our south coast,

with its moist balmy breezes, should be selected in preference to the more cold and bracing climate of the east.

At the termination of the illness the room should be thoroughly disinfected, and all clothing used during the illness destroyed. The disease as it effects adults is fully discussed in another section of this work. (*See DIPHTHERIA.*)

FALLING OF THE BOWEL—PROLAPSE OF THE BOWEL—PROLAPSUS ANI.—This is an accident which is liable to happen occasionally to weakly, and especially rickety, children. When the child goes to stool the bowel protrudes, and does not go back again. This condition of things is brought about—first, by the state of the child's health, which occasions a relaxed condition of the bowel; secondly, by any undue irritation of the bowel, as by worms; and thirdly, by constipation, which by causing the child to strain excessively at stool, produces the mischief. The condition need cause no alarm, for, although it is a strong indication of impaired health, it is not in itself dangerous.

The treatment consists, first, in the careful regulation of the child's health, and the administration of astringent tonics; cod-liver oil and steel wine (a teaspoonful of each) twice a day, after meals, is productive of great benefit, and is often sufficient in itself to effect a cure. Another excellent tonic is the Kepler Extract with Phosphates, a teaspoonful of which taken in a wineglass of milk twice a day, immediately after meals, acts as a chemical food.

The bowel should be anointed with lanoline cream and carefully replaced after every motion. It may, if necessary, be retained in its place by a conical pad fastened on by a bandage. The parts in the neighbourhood of the bowel must be kept carefully cleaned, and should there be any indication of the presence of worms, suitable measures must be instituted for the removal of them. Hazeline Suppositories which are hollow cones of cacao-butter filled with hazeline, if used twice a day, brace up the mucous membrane and prevent the bowel from protruding. They are introduced without the slightest difficulty, and give rise to no pain or inconvenience. The cacao melts in a few minutes with the heat of the body, so that the hazeline is brought in intimate contact with the affected parts.

The diet must be regulated with great care, and all indigestible food be most rigidly avoided. Constipation must be carefully guarded against: at the same time, care must be taken not to administer purgatives of

too violent a kind. If we can insure a perfectly free action once a day, that is all that is necessary. It is often easy to effect this by adding something to the diet that has a slightly laxative effect, as fresh fruit, tamarinds, stewed prunes, or figs. A teaspoonful of phosphate of soda, dissolved in beef tea or milk, is a very agreeable purgative for children, and if administered hot it is usually very effectual. Another useful remedy is Hashra Tea, half a teaspoonful or even less being infused for one minute in a little hot water, and administered at bedtime. It is not nasty, but it may be sweetened with a little sugar or Extract of Malt. It is perfectly easy to regulate the time of infusion and dose, so that it just opens the bowels comfortably.

FALSE CROUP.—(*See CROUP.*)

FITS.—(*See CONVULSIONS.*)

GANGRENOUS ULCERATION OF THE CHEEK.—This is a very serious condition indeed, and is one that occasionally attacks children when they are recovering from the infantile fevers, and especially after measles. It is most common between the ages of two and thirteen, but happily is not a common condition.

The first symptom consists in a swelling of the cheek, which often has a tense shining appearance, and on touching it we find a hardened spot, which is perhaps better felt if one finger be applied to the inside and the other to the outside of the cheek. The skin over it is generally red, and the condition is not unlike an angry carbuncle growing in the thickness of the cheek. This swollen patch mortifies or sloughs, and then we get extensive ulceration, with discharge of matter and shreds of core. This ulceration may spread enormously, so that the teeth fall out, and pieces of the jaw-bones loosen and come away. The glands of the neck and under the jaw get very much enlarged. The child but too often dies, the mortality from this alarming complaint equalling seventy-five per cent. of the total cases. Death is brought about either by exhaustion or by blood-poisoning secondary to the local condition.

The treatment must be local and general. For the local treatment strong measures are necessary, and it is always advisable to have the opinion and assistance of a surgeon. The gangrenous surface of the wound must be destroyed, so as to stop the gangrenous action, and for the effecting of this, strong aquafortis is probably the best application.

It must be applied thoroughly and to every spot of the wound, or it may have to be repeated.

Disinfectants must be used to cleanse the mouth, and the strength of the child must be supported by every possible means.

If the child is old enough tabloids of chlorate of potash and borax (T. 30) should be given to suck. For young children they may be dissolved in water and used as a mouth wash.

Another excellent preparation is Salodent, a few drops being added to water and used frequently.

The strongest soups, beef tea, port wine, arrowroot, and other nourishing and wholesome food, must be given liberally.

In a condition like this there need be no hesitation about giving wine even to very young children, as they take it well, and it will certainly do them good.

GERMAN MEASLES.—EPIDEMIC ROSEOLA.—RÖTHELN.—This is a mild infectious disease which bears such a close resemblance to measles that it is often confounded with it. It is not, however, identical with measles, as it affords no protection against that complaint, and is just as likely as not to break out in a family, the members of which have just suffered from a visitation of the more serious complaint.

The symptoms of German measles are, as a rule, very mild. The child is noticed to be feverish and out of sorts, and complains of headache. There is loss of appetite, and pain in the back is nearly always a prominent symptom. The eyes may be red and injected, but there is seldom running from the nose. Sore throat is a pretty constant symptom, and very often gets better for a day or two and then returns. The voice may be rough and husky, and there may be some difficulty in swallowing. The sore throat is never so severe as it is in scarlet fever, but it is much more pronounced than in measles.

The eruption closely resembles that of measles, but is usually more copious, and is liable to coalesce, so that the skin appears uniformly red. The rash, indeed, begins like measles, and ends like scarlet fever. The eruption lasts a longer time than that of measles, and its duration varies from five to ten days. After its disappearance there is a general peeling of the skin. This is more marked than in measles, but is not nearly so pronounced as in scarlet fever. An attack of German measles is never in itself serious. The only difficulty is that it may be confounded with true measles, which in so many respects it resembles. The temperature,

however, is never so high as it is in measles, and the spots are never arranged in a crescentic form. The points of distinction are not always well marked, and if there is any doubt, it is better to act on the supposition that it is the graver disease.

The treatment is extremely simple. The patient should be put to bed, and the room should be kept at a temperature of 64 degrees.

The window should be kept open for a couple of inches at the top so as to ensure a good supply of fresh air.

The only medicine required is aconite. For a child one year old, three one-minim tabloids of tincture of aconite (T.1) should be dissolved in a wineglassful of water, of this a small teaspoonful should be given every hour. For a child four years old, six tabloids may be used in making the aconite solution. The dietary should be of the simplest possible description, and should consist mainly of peptonised milk diluted with Rosbach water, a little strong beef tea being given from time to time.

When the rash has subsided and the patient is convalescent, steps may be taken to restore the strength by the administration of the Kepler Extract and Phosphates, alternated with teaspoonful doses of Beef and Iron Wine. As soon as the patient is well enough to get about, plenty of fresh air will be found desirable.

Although the disease is not serious, it is distinctly infectious, and the child should not be allowed to come in contact with other children until the skin has ceased to peel. After the illness is over the room should be thoroughly cleaned and disinfected. For washing the floor of the room, the "soloids" of compressed corrosive sublimate will be found useful. They should be dissolved in water in the proportion of one to the pint, and will be found to make an excellent disinfecting solution.

GUM BOIL.—(*See DOMESTIC SURGERY.*)

HOOPING COUGH.—(*See WHOOPING COUGH.*)

HYDROCEPHALUS.—(*See WATER ON THE BRAIN.*)

INCONTINENCE OF URINE.—(*See BED-WETTING.*)

INFANTILE PARALYSIS.—(*See CHILDREN'S PARALYSIS.*)

INTERTRIGO.—(*See CHAFING.*)

INTUSSUSCEPTION OF BOWELS.—(*See CONSTIPATION.*)

LARYNGISMUS STRIDULUS.—(*See FALSE CROUP.*)

MEASLES.—This is certainly the most common of all the diseases of childhood, and very few children indeed escape their attack of measles, which is almost looked upon as one of the early and necessary consequences of existence.

It is not, properly speaking, a disease peculiar to early age, but being one of the most infectious of the infectious diseases, human beings seem invariably to contract it when they are first brought in contact with its influence.

When measles attacks a “virgin population,” as it is called, *i.e.*, a population which has not previously suffered from the disease in question, it is found to attack all ages alike, and the elderly are found to suffer quite as severely as the young. Thus, in 1845, the measles invaded the Faroe Islands for the first time, and it was found that scarcely one of the inhabitants escaped being attacked by the disease: and one of the consequences of our annexation of the Fiji Islands has been the importation of measles there, and it is only necessary to recall to the mind of the reader the severity of the epidemic and the large number of fatal cases. The disease is far more severe and far more fatal when it invades a country for the first time; and it seems as though we inherited from our measles-infected ancestors and transmitted to our offspring some power of resisting the attack, which is not found among those whose history records no epidemic of this commonest of maladies. Even in Great Britain we find that measles is capable of attacking old persons as well as young, and no one can be considered as freed from all liability until he has once suffered. It is rare for a person to suffer more than once, and, as a rule, one attack is found an effectual protection; but this is not always the case; and everyone who has had an average experience of life can recall cases of persons who have suffered a second time from undoubted measles.

Measles is so infectious that it is often impossible to say how the child contracted it, and if one child in a house suffers, it is almost the invariable rule that all the denizens of the nursery suffer by turns. The infection of measles is probably conveyed by the air, and consists, it is not unlikely, of fine particles given off with the breath, or rubbed off the skin, which, floating in the atmosphere, are swallowed or inhaled, and give rise to measles in the person by whom they are taken in.

“Measles being so infectious,” the question may be asked, “is it any use to try and prevent it?” To this we should say, decidedly, yes, and especially if the child be very young. We think no mother would be justified in running any risk by allowing her babies to have any

intercourse with houses or families where this complaint is known to exist. Very young children have necessarily less resisting power for disease than older ones; and if the attack of measles can be warded off until the child is a couple of years old, and has passed through the period of cutting teeth, the chance of its passing successfully through the measles, and making a complete recovery from it, is very greatly increased.

Measles may be likened to a very bad cold with a rash. The child appears "out of sorts"; is peevish, perhaps; does not take its food with a relish; and instead of participating in the amusements of its fellows, is more inclined to keep quiet, to lie down on the sofa, or even to remain in bed. Then comes a little sniffing at the nose, a running at the eyes, and perhaps a trifling sore throat. These symptoms are very characteristic, and any nurse who has had the ordinary experience of the nursery would, on seeing these, suspect the onset of measles. Any child presenting the appearances we have mentioned should at once be separated from its fellows until the disease has either passed away or declared itself. In these early stages the child is feverish, and the temperature of the body (as measured by a thermometer) will be found increased. It is probable also that a child is infectious even in this early stage, and its being placed in quarantine may be now too late to prevent the spread of the disease, but we nevertheless strongly advise separation as a precautionary and proper measure.

After a child has suffered for two or three days (generally three) from this feverish cold the rash appears, and when the rash appears the other symptoms generally increase somewhat in severity. The rash appears first on the forehead, at the roots of the hair; next it goes to the cheeks; then the chest and surface of the stomach are attacked; and lastly the arms and legs. The rash consists of rose-coloured spots, varying in tint very much, as the tints of red blotting-paper vary, from a pale pink to a decided red. The spots are of an average size of a small split-pea, and may be scattered in separate spots or so close together as to make the skin look uniformly red. They are sometimes collected together into crescentic patches, but the crescents as a rule are not easily recognised. Each spot lasts about twenty-four hours, and then fades; and the eruption ought to have subsided entirely by the end of the fourth day after its appearance. As the eruption subsides the other symptoms subside also; the feverishness abates: and at the end of a week, in favourable and average cases, the child will have passed through its measles with very little trouble to itself or its friends.

We have described an average attack, but it not unfrequently happens that the special symptoms which we have enumerated are so severe as to give rise to grave anxiety. Thus the eyes are not unfrequently much reddened and inflamed. The child feels as if there were sand beneath the lids; it is unable to bear the daylight, and the discharge from them may be considerable in amount. The discharge from the nose may be copious, accompanied by incessant sneezing, and at times bleeding from the nose may take place. The sore throat, too, may be troublesome, and the glands under the jaw and round the neck may become enlarged and tender. The rash, as we have said, varies in amount, and in rare cases the whole face becomes red and swollen, and the poor child is a pitiable object, with its eyes swollen up and intolerant of light, its throat too sore to swallow, its nose tender and discharging, almost deaf from the spreading of the trouble from the throat and face to the ears, and harassed by incessant coughing and sneezing.

When measles runs an uncomplicated course, it is not a disease which generally causes much alarm. When measles is fatal, it is so by its complications; and it is for these complications that the friends should ever be on the look-out, and to the prevention of which much of the treatment is directed.

These complications often occur in the windpipe or lungs. We may have inflammation of the windpipe established, or inflammation of the lung-tubes (bronchitis), or inflammation of the lung substance itself (pneumonia). These conditions are all serious, and are indicated by noisy breathing, great increase of cough, very rapid respiration, and sometimes by signs of impeded respiration and commencing suffocation. When any of these symptoms occur, the child cannot be considered to be free from danger.

Complications referable to the bowels are not uncommon, and obstinate diarrhœa often proves a great trouble. It should be considered a rule that during measles all purgative medicine should be given with a sparing hand, lest by setting up diarrhœa the life of the patient be jeopardised.

Measles is liable to be confounded with certain other diseases, or other diseases which resemble measles may be mistaken for it.

Children are not unfrequently troubled with a rash closely resembling measles, which is called roseola, but which differs from measles (1) in coming out all over the body at once: (2) by not running a definite course; (3) in not being accompanied by the running at the eyes and nose which are characteristic of measles; and (4) by often being directly attributable to some error in diet.

The points of distinction between measles and rotheln have already been sufficiently indicated. (*See GERMAN MEASLES.*)

Small-pox and scarlet fever have both been mistaken for measles—an error which may be fraught with serious consequences. The mode or outset of small-pox is more severe than that of measles, and the eruption differs in several ways: thus, the small-pox eruption begins in the centre of the face, while that of measles is at the roots of the hair; the small-pox eruption is raised and hard and soon becomes mattery (pustular), while that of measles is scarcely perceptibly raised, and never suppurates. The commencement of scarlet fever is usually marked by the severity of the throat symptoms, while in measles these are generally of a subordinate character. The eruption of scarlet fever is a bright scarlet, composed of fine dots, and commences at the root of the neck and top of the chest.

It is often a matter of very great difficulty to distinguish between measles and German measles. As a rule the rash lasts longer in measles than in German measles. In measles the rash is more commonly crescentic in form than in German measles. The milder character of the catarrh will hardly serve as a distinguishing mark, for sometimes in measles the cough and coryza cause very little inconvenience. In German measles there is often very little fever, and the elevation of temperature subsides on the second day. In spite of these points of contrast between the two diseases, it is often a matter of the very greatest difficulty to arrive at a correct conclusion.

When the disease has subsided, and convalescence sets in, the child requires the greatest care, for patients who are recovering from any febrile disorder, but more especially measles, are very prone to fall into constitutional weaknesses, which may prove rapidly fatal, or cause a “delicacy” of constitution which may last for a life-time. Tuberculosis in one of its forms may be, and very often is, established; and it is no unusual thing to see a child become consumptive, or succumb to meningitis, or tuberculosis of the intestines (marasmus). Discharges from the ear, which are often very troublesome and difficult to cure, are not unfrequently caused by measles. Gangrene of the cheek is a somewhat rare occurrence, and happily so, for when it happens it is almost invariably fatal. During convalescence from measles, children are peculiarly liable to contract whooping cough, and, strangely enough, the reverse seems also to hold good, for children suffering from whooping cough are peculiarly liable to contract measles.

The treatment of uncomplicated measles is a very simple matter

The disease itself requires very little treatment. There is no specific antidote for measles; and in spite of drugs and medicines it will run its course. The chief thing to be aimed at is to take care that while the child is suffering from measles it takes no harm. The patient should be kept in a warm, well-ventilated room, and in bed. Happily, the patient usually prefers being in bed, so that there is no difficulty in keeping him there. The light should be partially excluded from the room if there is much soreness of the eyes, and these, as well as the nose and mouth, should be kept scrupulously clean by occasional washing with warm water.

If thirst be complained of, toast and water or lemonade, made without or with very little sugar, may be given to drink.

The skin should be sponged once a day with warm water to which a little vinegar has been added. This should be done with the greatest care, since any undue exposure to the risk of catching cold is above all things to be avoided.

The food should be bland, nourishing, and simple, and should vary according to the age of the patient. Milk—peptonised with Zymine Powders—barley-water, soft puddings of custard and farinaceous articles, beef tea, mutton or chicken broth, bread-crumbs, and gravy; and for older children, a little chicken may be added. Food should be given at regular intervals, preferably every four hours.

Although medicines are not absolutely necessary, it is a good plan to give the patient small and frequently-repeated doses of aconite. This drug undoubtedly removes the hot, dry, and tense feeling of the skin which is so frequently a source of discomfort. The great point is to commence the treatment as early as possible. For a child a year old, dissolve three or four one-minim tabloids of tincture of aconite in a wineglass of water, and of this give a teaspoonful every hour. For a child four years old, use six of the one-minim tabloids in making the solution. If the skin is very dry, the addition of a little belladonna will be found useful. Three of the one-minim tabloids of tincture of belladonna may be added to the aconite solution, the two drugs being given together. When there is much restlessness at night, three grains of bromide of strontium in a little sweetened water, at bedtime, will be found useful.

Not only is it necessary to insure that the little sufferer passes safely through the attack, but it is of the greatest importance also to guard against the invalid becoming a centre of infection to others. No child who has had measles should be allowed to mix with other children until the temperature has fallen to the normal amount (98.4° Fahrenheit),

and all the other symptoms have entirely subsided. After the rash has disappeared, a little roughness, scaliness, or scurfiness of the skin is liable to prevail in those places where the eruption has been most severe; and, although this scaling of the skin is far less marked than it is in scarlet fever, no child can be said to be free from infection until it has entirely disappeared.

When all the symptoms have subsided, the child should be thoroughly bathed and washed with soap, and all its clothing, bedding, bed and window curtains, and the clothing of those who have been in attendance upon it, should be thoroughly disinfected and washed. The disinfecting solution recommended by the Local Government Board may be used. It is made by mixing half an ounce of corrosive sublimate, one fluid ounce of hydrochloric acid, and five grains of commercial aniline blue in a bucketful of water. It is *poisonous*, but is a good disinfectant. Sheets and all linen articles should be thrown into this solution and then thoroughly rinsed in clear water for three or four hours before being sent to the wash. This solution may also be used for washing the floor and bedstead. The carpets, furniture, etc., of the room should be cleaned, and thoroughly exposed for some hours to fresh air and sunlight.

It should always be borne in mind that during convalescence from even a slight attack of measles, children are in a delicate state of health, and require more than an ordinary amount of care and attention, and a watchful eye should be kept upon them for a month at least, to take early notice of any signs of constitutional weakness.

MENINGITIS.—(See TUBERCULOSIS.)

MOTHER'S MARKS.—(See DOMESTIC SURGERY.)

MUMPS—PAROTITIS.—This is a disease which is characterised by a painful and inflammatory swelling of the salivary glands.

It is generally limited to the parotid gland—the one just below and in front of the ear on either side—but it may affect the glands which are under the jaw and tongue as well.

It is a general disease, and not a local one. It is, in fact, a specific fever, and must be placed in the same class as measles and small-pox. The affection of the salivary glands is what is known as the local manifestation of a general disease, and is distinctly analogous to the eruption of small-pox, the ulceration of the bowels in typhoid, and the

sore throat and rash of scarlet fever. It is distinctly infectious, and once introduced into a house usually runs through the family.

Although most common in childhood, it is by no means limited to the first years of life, but is tolerably common at any age up to thirty; but beyond this period it is said not to occur. The period of the commencement of the second dentition is perhaps the most common time. The period of incubation, *i.e.*, the time which elapses between the exposure to the contagion and the first manifestation of the disease, varies from one to three weeks.

The disease usually begins by a feeling of pain in the neighbourhood of one ear, which is greatly increased during any exercise of the jaw, as in eating. The characteristic swelling then appears, and this is often sufficient to cause a considerable deformity of the face. The swelling is just below the ear, behind the angle of the jaw, and extends also a little forward over the angle of the jaw to the front of the ear. It is uniformly smooth, and is more or less tender all over the surface. The swelling begins first on one side, and then, as this subsides, the other side is usually attacked. When the swelling on both sides occurs in this way, we may almost certainly assert that the disease we have to deal with is mumps and nothing else. At this period there is considerable general disturbance, and, besides the local trouble, the patient complains of headache, thirst, loss of appetite, and general malaise. The temperature in the earliest stage is considerably raised, and a thermometer placed in the mouth will usually register 100° Fahrenheit, and may rise much higher, to 103° , and even over. The patient feels miserable, and prefers to be left alone. Even if the appetite remains fairly good, the act of taking food is often so painful as to render it impossible. When the glands under the jaw are affected as well as the parotids, the patient's condition is really pitiable. It often happens that the pain is far less in children than it is in adults. Associated with the swelling of the salivary glands, there is often a good deal of enlargement and tenderness of the lymphatic glands at the side of the neck. Although the swelling is often very great, and the skin over it may become reddened, matter hardly ever forms in the gland, and the swelling subsides again completely.

The complaint usually reaches its height before the end of the first week — sometimes, in mild attacks, after a couple of days. It then begins to decline, and is fairly over at the end of eight or ten days, and the child is quite well again. One attack protects from another.

Although the disease happily, as a rule, runs a mild course, it does

not always do so, and there is a great liability in mumps for *metastasis* to occur—*i.e.*, for the inflammation to shift its ground and attack other parts. The parts most liable to suffer are, in boys, the testicles, and a watchful eye must be kept over them for the first appearance of any trouble of this kind.

Occasionally, too, the brain may suffer, and it not unfrequently happens that during an attack of mumps the first signs of tubercular meningitis become manifest. It is because of these possible serious complications that mumps must be considered as one of those diseases during which, no matter how mildly they may suffer, children require unremitting attention.

The only disease for which mumps is likely to be mistaken is an inflammatory swelling of the glands over and in the neighbourhood of the parotid—the so-called *parotid bubo*—which sometimes forms during or after scarlet fever, and, less frequently, after other of the febrile attacks of children.

The treatment of mumps is very simple. Those affected should be separated from those non-affected, and it must be borne in mind that a child is supposed to be infectious for at least three weeks after it is first attacked. Many thoughtless persons might be inclined to say, "Such precautions are nonsense; mumps is a mild disease, and the sooner the children have it the better." Such an argument cannot be too strongly condemned, and those who do not use every reasonable precaution to protect their children from disease of all kinds, no matter how slight and trivial it may appear, incur a very grave responsibility. If mumps is a trifling matter, we have shown that its complications are often serious, and we would further insist that during convalescence from this disease children are often left in a very vulnerable state, and are liable to be attacked by constitutional maladies of a very grave nature.

Children need not of necessity be kept in bed, but they must be kept in an equable temperature, and not exposed to draughts. The bowels must be regulated by a little phosphate of soda given in broth, and the diet must be nourishing and soft—soups, beef tea, eggs, arrow-root, and so forth. If there is much thirst, lemonade to which a tabloid or two of bicarbonate of potash has been added will be found grateful. Iced Seltzer or Rosbach Water is often appreciated.

Unless the local swelling is very bad, no treatment need be resorted to; but if there be much pain or tension, warm-water fomentations constantly renewed will be found to give relief. If fomentations or warm applications are used, it must be constantly borne in mind that

after their removal the parts are very liable to suffer from the effects of cold, so that they must be constantly and carefully wrapped up in flannel. If the testicles become inflamed, the boy must immediately be sent to bed, and kept there till the inflammation subsides.

When the disease subsides, which is best judged of by employing the thermometer, it may be advisable to give some tonic medicine, such as quinine or beef and iron wine, and the remarks we have made about the convalescence from this disorder must not be forgotten.

NÆVUS, OR MOTHERS' MARKS.—(*See DOMESTIC SURGERY.*)

NIGHT TERRORS.—This is one of those minor troubles of childhood which often prove so alarming to mothers.

A child is put to bed in good health and spirits. After it has been asleep some two or three hours, shrieks and cries are heard coming from its bedroom, and when the mother runs in to see what is amiss, the child is found sitting up in bed in an agony of fright, crying at the top of its voice, and with the tears streaming down its face. "Take it away, take it away! That thing! There it is! there it is!" are probably the terrified expressions to which the child gives utterance, and perhaps it points to some gown or curtain which, hanging on a peg, and half illumined by the moonlight, has been mistaken for one of the ogres or bogies with tales of which its nurse has filled its infant mind. The child at first refuses to be comforted, and in spite of the presence of light and of friends, it is still apprehensive that something is wrong. The mother should sit by its bed, hold its hand, and talk to it, and its mind being diverted from that which caused it alarm, it will not be long before it falls asleep again.

These troubles do not occur more than once during the night, but they are very apt to recur at the same hour every night. They need not, as a rule, cause alarm. They are seldom the precursors of fits, or epilepsy, or of any serious trouble, and they are usually to be attributed to some difficulty in digestion, or to some error in feeding. The child has probably made its first acquaintance with nightmare, and has seen in its dreams some weird face, with many varieties of which we become acquainted as we grow older. Nightmare will cause an adult to wake with a start, and with a feeling of devout thankfulness that "it was only a dream," and it is not to be wondered at that children should fail to put the proper interpretation upon these alarming apparitions of our sleeping hours.

The best remedy for this condition is bromide of strontium. For a child four years old, a five-grain tabloid of bromide of strontium should be dissolved in a little sweetened water and given at bedtime. For a younger child half the quantity will suffice.

The bowels should be regulated by some mild aperient, such as a small dose of Gregory's Powder or of Hashra Tea, and a five-grain tabloid of bicarbonate of soda should be given after each meal.

The dietary will have to be carefully regulated, whilst potatoes, puddings, cakes, fruits, and above all, sweets should be forbidden. It is essential that the last meal should be of a light and easily digestible character.

If other means fail to effect a cure the nurse should be got rid of, especially if her stories have been the origin of the difficulty.

RED GUM.—This is a very common disease among children from birth until the completion of the first dentition. It is technically known as *strophulus*, and consists of a sprinkling of pimples or papules irregularly scattered over the body. The pimples are usually small, about the size of a pin's head, and are occasionally the seat of troublesome itching. The eruption is of small importance. It sometimes depends upon slight derangement of the stomach, and occasionally is attributable to the irritation of dentition.

The treatment is almost nil. The child's diet must be supervised and, if necessary, a dose of carbonate of soda is to be given, or a little lime water may be added to the milk.

RICKETS.—This is a disease which everyone who is much brought in contact with children should endeavour to understand. It is very common in London and other large English towns, and has been called on the Continent the "English disease."

Its main features are a softness of the bones, and a general muscular and constitutional weakness. The softness of the bones leads to deformities of the limbs, chest, and back, and most of the crooked-limbed cripples and dwarfs that we see in Great Britain have been the victims of rickets. There is another disease occurring in adult life which is characterised by softness of the bones, but that is quite different from rickets, which is a disease limited to childhood.

Children are not born rickety, but the symptoms appear during the

completion of the first dentition (between the seventh and twenty-fourth month). The child appears not to be well; it is irritable and languid, and does not care for its food. The motions are particularly offensive, and often have a rotten odour, from the decomposition of undigested food in the intestines. The child is pale, sallow, and muddy-looking: it is restless at night, kicks the bed-clothes off persistently, and when it sleeps it perspires freely, so that its night-dress becomes quite wet, and the perspiration stands in beads upon its forehead, and soaks the hair and the pillow. When these symptoms appear before the completion of the second year, the rickety constitution may be suspected, and it is important to detect it before any deformity has occurred.

The growing ends and margins of the bones are bigger and thicker in rickets than they should be, and to these points we accordingly look for confirmatory evidence. The joints are big and clumsy, as an inspection of the wrists and ankles shows. The ends of the ribs, where the bone joins the breast-plate of gristle which closes the front of the chest, are enlarged, and by passing the hand over this line of junctions we may feel them to be big and nobby. The anterior fontanel (the opening between the bones on the crown of the head) remains unduly open, and keeps so until after the twenty-fourth month, at which date it is closed in healthy children, and the edges of the bones forming the side and top of the skull may (by a practised hand) be felt to be enlarged. The general lassitude of the child is a very marked feature; and, indeed, the muscular weakness is as strongly characteristic as is the softness of the bones. The child no longer delights in being played with, and neglects the games which lately were its greatest source of joy. It does not, as most healthy children do, draw its feet up towards its mouth; and when it is lifted from its cot, or dandled by its nurse, it cries with pain instead of crowing with delight. In some rare cases the muscular weakness is so great, and the general helplessness of the child is so marked, that it has been compared to a lay-figure made of wet brown paper.

Soon the deformities make their appearance. They are due to the softness of the bones. The pigeon-breast is perhaps the most common and characteristic of these. The sides of the chest fall in, and the breast-bone projects forward not unlike the breast of a bird. The back gets bowed outwards, and it is characteristic of the crooked back caused by rickets that it will sometimes straighten out if the child be held up by the arm-pits. The arms and forearms are bent outwards. The thigh-bones bend forwards, and the bones of the leg bend out, so as

to produce the extremest degree of bandy-legs. The head gets big, and the forehead is high and square, and this, coupled with the dislike for the sports of infancy which the child acquires, generally causes it to be looked upon by its friends as a prodigy of cleverness. This is far from being the fact, however, and the intellectual power is not unfrequently as much below par as the physical; but since these children often sit with their elders instead of playing with their fellows, they are apt to pick up a few quaint and old-fashioned expressions, which give the false notion that they are clever beyond their years. The teeth are late in being cut, and, indeed, rickets is the commonest of all causes of delayed dentition.

Rickets is not in itself a very common cause of death, but the rickety condition very largely increases the danger of other diseases, and notably of all diseases that affect the lungs. Whooping cough is a very fatal disease to rickety children, and so is bronchitis. The reason of this is that owing to the softness of the walls of the chest, the child is unable to distend its lungs with air properly, and consequently it has a great difficulty in coughing. If, therefore, bronchitis should set in, and secretion is poured into the lung-tubes, the child is not able to cough it out as a healthy child does, but dies suffocated. These weak, rickety children are peculiarly liable to be attacked with bronchitis during measles and whooping cough, and when so attacked they very generally die: and, although the death is generally ascribed to bronchitis it ought really to be ascribed to the rickety condition. Laryngismus stridulus, or false croup, is another disease which is very common in rickety subjects, and so, too, are general convulsions.

The subjects of rickets are very thin, and they are often spoken of as suffering from atrophy. The liver is occasionally enlarged, as is also the spleen, and this, together with weakness of the abdominal muscles, causes a prominence of the belly.

The bones of rickety children have been found to contain scarcely one-third the proper amount of earthy matter.

Rickets is probably one of those diseases which is absolutely preventible, and hence a knowledge of the causes which are said to produce it is of the utmost importance. First, then, it is not hereditary. Parents of healthy constitutions may have rickety children, and parents who have been rickety do not seem liable to transmit the disease from which they have suffered. The health of the mother at the time she is pregnant with and nursing her child seems to have considerable influence on the development of rickets. The first children in a family are seldom rickety. The disease usually shows itself after the birth of one or two

children, and after rickets has once shown itself the subsequent children seem also to be liable to the disease.

The explanation of this fact is as follows:—A poor man marries, and his wages are, perhaps, adequate for his position in life. In a year, probably, their firstborn arrives, but if they have been prudent people, and have been properly thrifty, something has been saved to meet the slight extra expense entailed, and their one child is a scarcely appreciable burden on their exchequer. The mother, being well fed, is able to nurse her offspring without difficulty, and the child passes satisfactorily through its infancy. The family continues to increase, but not so the wages of the father, and when the second child arrives, and still more when the third makes its appearance, the parents begin to find that what was enough for two is not enough for five. The mother, probably, has to live upon a scantier diet than heretofore; and, in addition to the call upon her system entailed by suckling a baby, she finds that the performance of her household duties is no slight tax upon her strength. Dreading the periodic increase of her family, she suckles her baby much longer than she ought, and instead of nursing it for nine months, she probably keeps it at the breast for twice that period, hoping thereby to escape becoming pregnant. As a consequence she becomes terribly anæmic: she looks pale, bloodless, thin, and weak. Her strength is not sufficient for her household work, her head aches, her heart palpitates, and the slightest extra exertion makes her pant for breath. In this weakened state of health she becomes pregnant again, and this fourth child, born of parents in straitened circumstances, and nursed by a mother whose blood has been impoverished by want of proper food and over-nursing, is almost certain to become rickety. One rickety child having been born, and the circumstances which have produced it not being removed, subsequent children are sure to be rickety also, and generally they show an ascending scale of the rickety constitution as we descend from the elder to the younger members of a family. Over-suckling has perhaps more to do with the production of rickets than any other of the single causes mentioned; and it cannot be too strongly impressed upon young mothers in every station of life, but especially amongst the poor, that such a proceeding is in the highest degree immoral, and far from lightening their labours, or helping to keep their families within convenient limits, it will assuredly increase the one a hundredfold (for in the place of a healthy mother presiding over a family of healthy children, we see a weak, sickly woman struggling with a family of cripples): and as for the other object sought to be obtained, there is no evidence whatever as to

the possibility of gaining such an end, and, even if there were, the immorality of the proceeding is such that any woman practising it ought to be ashamed to confess it.

Any woman suckling her children after the ninth month is doing a thoroughly wicked thing, which will bring a terrible punishment upon her and hers in the shape of sickness, and multiply the trials of life enormously.

Rickets is certainly most common among the poor, but it is not altogether limited to the poorer strata of society. Occasionally we encounter rickets in a mild form among the well-to-do, and even the wealthy; and when such is the case, we shall find that the mother has been having her family very rapidly, or that something has occurred to depress her health during pregnancy, or that she, too, has made the fatal mistake of nursing her children for too long periods.

Although rickets is certainly attributable to the causes mentioned, there must be other causes at work which are less understood. It is a disease, for instance, which is probably more common in London than in any other large town in England; and, curiously enough, it seems to be almost as rare in Glasgow and some of the large towns north of the Tweed as it is common in the Metropolis. There may be climatic influences which help to cause the difference, or possibly the common use of oatmeal among the Scotch poor may give a stamina to the constitution of the mothers and children which is not to be got from wheaten flour. Possibly, too, the great want of light in London, and the difficulty of getting to the outskirts of the huge town for even the occasional enjoyment of country air, may have their share in increasing the causes of anaemia (or bloodlessness) among the women.

The treatment of rickets is happily singularly satisfactory, and there are few diseases in which we are able to effect so much and such permanent benefit.

First, we must remove the cause, by pointing out to parents the evil influences which are at work for the production of disease in their children. We must ensure that the mother and her children are well and properly fed. The ignorance existing among the poor as to the proper feeding of children is lamentable, it being no uncommon thing to see a child drawing part of its nourishment from Nature's fount, and alternating this with bread, red herrings, underdone potatoes, or whatever else is to be found on the badly-furnished dinner-tables of the poor.

A child that shows symptoms of rickets wants nourishing food that

will make blood. Milk and strong beef tea should be the staples of its diet, and if it have any teeth it may be allowed to chew meat for itself. It is better to give a child a good-sized piece of meat and let it chew it, than to feed it on meat minced to such a size that it is able to "bolt" the pieces without masticating them.

The child should be fed at regular intervals, and should not be allowed to eat trash between its meals, and so destroy its appetite for really nourishing and valuable food.

Farinaceous food should be given sparingly until the child has got sufficient teeth to be able to champ it in its mouth; for farinaceous articles are very difficult of digestion unless they are properly and thoroughly mixed with the saliva in the mouth. Oatmeal porridge is a form of farinaceous diet which is too little given to children south of the Tweed.

Tea should never be given to infants, and alcoholic drinks (except in the case of acute illness) should be entirely withheld.

Next to good and wholesome food, fresh air is of the greatest importance, and a rickety child should be taken for its daily airing without fail. It should be well wrapped up, and its face and chest should be thoroughly protected, for a cold which would be a trifling ailment for other children might be fatal to one that has a weak, rickety chest.

In the way of drug treatment there is much to be done in rickets. The bones require for their proper development both lime and phosphorus, and these constituents should be supplied freely.

One of the best ways of giving lime is in the form of chloride of calcium. Dissolve an ounce of pure chloride of calcium in half a pint of water, which should be kept in a bottle, and of this solution give one tablespoonful in milk three times a day.

Another good form of administering lime is in the form of lime water. Add a fourth part of lime water to all the milk the child takes.

The best way of giving phosphorus is in the form of the elixoid. Ten drops of this should be given to a child four years old in a wine-glass of water three times a day.

The lime and phosphorus treatment should be kept up, at intervals, for at least six months, intermitting the administration of the drugs for three or four days every third week.

If the child is weak and pale, give a tabloid of dialysed iron twice a day after meals, until a hundred have been taken.

If the bowels become constipated, give occasionally, at bed-time, one or two one-grain tabloids of grey powder.

In cod-liver oil we have a drug which may be given with the greatest benefit to rickety children, and which in most cases they take very readily. There may be a little difficulty at first, but very soon they learn to like it. The mistake is often made of giving cod-liver oil in too large doses, and then it often makes the child sick, and creates a disgust which is above all things to be avoided. A teaspoonful is quite enough for a dose, and this, repeated twice a day, often works wonders. The cod-liver oil may be given in milk or orange wine, or, still better, it may be mixed with an equal quantity of steel wine. The steel wine, if not mixed with the oil, may be given separately, and a teaspoonful twice a day, after meals, is of the greatest service, and is scarcely looked upon by the child in the light of a dose of medicine.

Another good remedy is extract of malt, a teaspoonful every night and morning in a little milk. The Kepler Extract of Malt with Phosphates is especially adapted to the requirements of rickety children, and may be taken with advantage for many months at a time. They not only grow fat on it, but the bones little by little regain their normal firmness and elasticity. In summer it may be employed with advantage as a substitute for cod-liver oil.

When the deformities of rickets make their appearance, the question of their treatment arises. These deformities are due to the softness of the bones, which are unable to bear the weight of the body, or perform the work required of them. If the legs are bent, the child must not be allowed to walk, or the deformity will assuredly increase; and it needs no great knowledge of mechanics to see that, if the bones of the legs have become bowed, any pressure exerted on the top of those bones must increase the amount of the bowing. Splints have been used to straighten the legs, and, if the bowed legs be properly and scientifically bandaged to the splints, the deformity may be very much reduced, if not cured. While the splints are being used for the legs, *the child must not be allowed to walk*, for all the bones in the body are as soft as those of the legs, and although the splints may prevent the leg-bones from bending, yet the weight of the trunk will cause a curvature of the spine, and probably a deformity of the hip-bones, which (if the child be a girl) may seriously interfere with child-bearing hereafter, and even, should she ever become pregnant, endanger life. A child suffering from rickets should be "taken off its legs" for a time, and encouraged to keep the horizontal position, and when it takes the air, should

do so in a long-bodied perambulator, in which it can lie at full length.

In many cases benefit is derived from rubbing the limbs night and morning with some bland and slightly stimulating application, such as Chatteris Oil.

RINGWORM.—This is a most troublesome and infectious disease, and although it is not dangerous to life, it often interferes for many weeks, or even months, with the child's education, since it is never safe for a child with ringworm to mix with other children.

There are two varieties of ringworm: ringworm of the scalp, and ringworm of the body. They resemble each other in this, that, beginning from a centre, they spread from that centre, and gradually enlarge, forming circular patches on the head and red scaly rings upon the body. They are both caused by the growth of a vegetable parasite—a fungus, in fact—in the roots of the hair, and in the superficial scales of the skin (the cells of the epidermis). If we may compare small things with great, we may say that the rings of ringworm are exactly comparable to the "Fairy rings" we see upon the Downs in the South of England, which grow centrifugally, enlarging day by day, and having their outer limits marked by a crop of fungi, or toadstools, as they are popularly designated. So when the hairs from a patch of ringworm are examined with a microscope, we see the spawn and the fruit of the fungus, which are far too small to be visible to the naked eye. The fungus has received the name of the *Trico-phyton tonsurans* (*Anglicè*, "the shaving hair plant"), to the growth of whose "mycelium" and "spores" the phenomena of ringworm are attributable.

Ringworm of the scalp occurs in patches which vary in size from a threepenny-piece, or even smaller (although they seldom attract attention before they have attained this), to a penny. All the hairs on a patch of ringworm look as if they had been broken off, for they are all short and all choked as it were by the excessive scurfiness which has arisen among them: for the growth of the fungus seems to cause an excessive development of the superficial cells of the skin, which are rapidly thrown off. The patches feel thickened, and may be hotter than the rest of the head, and the child usually complains of itching of the part.

Ringworm of the scalp is generally more difficult to cure than ringworm of the body, the reason being that the fungus is more difficult to reach when remedies are applied to hairy parts.

The hair must be cut as close as possible all over and round the patch. It often goes to a mother's heart to have to rob a pretty child of its flowing locks; but if she be a wise woman she will steel her heart for the trial, for we are sure that the long duration of many cases of ringworm is entirely due to the unwillingness of friends to permit the only proper and rational treatment. The hair having been removed, and the part having been moistened by the application of hot-water dressing for a time, the best remedy is to rub in very thoroughly the preparation known as "Iethyol and Lanoline Ointment" night and morning.

Carbolic acid and glyeerine, creasote ointment, and sulphur ointment, are also favourite remedies.

During the treatment the part should be kept perfectly clean, and the local remedies should be applied at least twice a day.

The treatment of ringworm must not, however, be entirely local. Vegetable fungi do not grow on all soils, and the healthy skin of a child is probably quite incapable of nourishing them. Ringworm probably always shows one of two things: either that the child is out of health, or that the skin, either from dirt, neglect, or accident, has become irritable and slightly inflamed. It is necessary to attend to these points, and to give constitutional and other remedies. Kepler Extract of Malt, Beef and Iron Wine, Elixoid of Phosphorus, Cod-Liver Oil, and Steel Wine will all be found useful.

It is a foolish, a dangerous, and always a troublesome practice to allow the hair of children to grow long. In this state it requires an enormous amount of attention, and is kept clean only with difficulty, and affords a dangerous lurking-place for vermin, or the seeds of fungi, which are always floating in the air ready to take root directly a fitting soil is afforded them. It is the fashion on the Continent to crop the hair of children as closely as possible, and it would be well if the custom were more general in England. "Long hair," as Lord Wolseley has said in his "Soldier's Pocket Book," "is the glory of a woman and the shame of a man." We wish it were considered a shame in little children also.

In treating ringworm, we must warn the reader that after the application of the remedies, and after the death possibly of the fungus, the patch may remain red and scurfy. We must not be in too great a hurry to make fresh applications unless we are sure that the patch is actually extending at the edge. A little glyeerine of borax is generally sufficient in these cases to restore the head or skin to its natural condition.

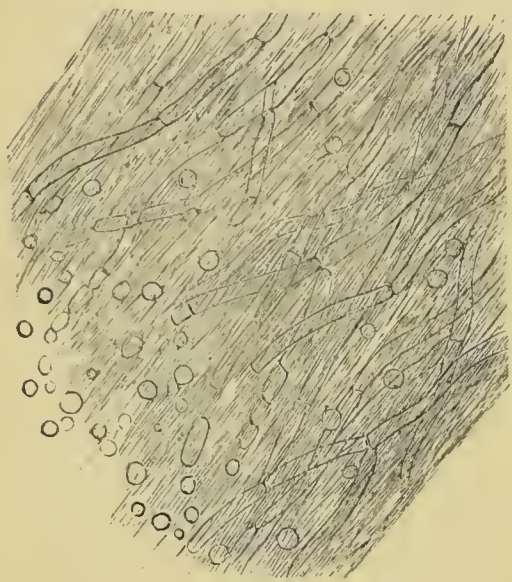
There is a pseudo ringworm of the head which is happily not very common in Great Britain. It is due, like ordinary ringworm, to the growth of a fungus. It seldom occurs on the body, and it is very liable to cause permanent baldness of the spot which has been affected, which ordinary ringworm never does. This disease is called *favus*, and in it the head is covered with yellow crusts, which have a disagreeable fœtid odour which reminds one of mice. It is a disease very difficult to cure, and requires the same remedies as ordinary ringworm; but, being a more serious disease, its treatment ought in all cases to be controlled by a medical man.

The subject of ringworm in schools is a very serious one indeed. In the first place, there is no doubt that ringworm is excessively common amongst children in schools; secondly, that the disease is propagated for the most part by contagion, from head to head, by actual contact, the interchange of caps, or the use of hair-brushes in common; and thirdly, that when once the growth of the fungus is firmly established, the disease is most obstinate, and may not be eradicated for months or years. It does not matter how careful a mother may be, she cannot guard her children against infection whilst they are at school. The outbreak of ringworm means exclusion from school and many months' loss of instruction and enforced idleness. The only way to keep ringworm out of a school is by systematic medical inspection. Every child should be carefully examined on returning to school, and this examination should be repeated at frequent intervals. Care should be taken as far as possible that the children do not interchange hats or caps. There should be a separate hair-brush for each child, and towels should not be used in common. On the slightest indication of ringworm the child should be placed under medical treatment, and if allowed to continue in the school should be compelled to wear constantly a suitable cap for the prevention of the dissemination of the fungus. These rules embody the recommendations made by Dr. Colcott Fox at an instructive discussion on "Ringworm in Elementary Schools" at the International Congress of Hygiene and Demography, held in London in 1891.

Ringworm of the body may appear on any part of the face, limbs, or trunk. It is said to affect mainly the roots of the hair, like the allied disease of the head, but the hairs on the body being finer and more scantily placed, we are enabled to get a better and different view, as it were, of the phenomena of the disease. The broken hairs in ringworm of the body require to be very carefully looked for with a powerful magnifying glass. The extreme scurfiness seen in the head is

replaced by a trifling roughness and scaliness of the skin, and the advancing edge of the ring, not being hidden by long hairs, becomes the most prominent feature of the disease. The red ring is usually of a dull red colour, and if it be carefully examined, it will be seen to be marked by very fine clear watery heads, or vesicles, and tiny branny scales.

Those who possess a microscope may be interested to see these minute vegetable parasites which occasion so much trouble in our



RINGWORM FUNGUS.

nurseries. It is a simple matter to do so, provided the microscope has a quarter-inch object glass. Pluck out one or two hairs from the patch, and scrape off a few of the scales with the point of a penknife. Place them on a glass slide, and add a few drops of strong solution of potash; then cover with a covering glass, and examine. The threads of the fungus and the little round spores will then be seen within and between the scales of the skin, and within and around the roots and shafts of the hairs.

The cure of ringworm is often very difficult and tedious. The only thing is to kill the fungus, and prevent its further growth. For ringworm of the body, the popular method of painting the patch with ink is often sufficient to effect a cure. Strong acetic acid is another favourite remedy; so also is a strong solution of borax or boracic acid. Nitrate of silver may be used, or a solution of corrosive sublimate, but the latter remedy had better not be applied except by a medical man. Diluted carbolic acid is also a favourite and effectual remedy.

ST. VITUS'S DANCE—CHOREA.—This is a disease which is trying alike for the patient and the friends. Its onset is generally gradual, but may be sudden. The starting-point of the disease is very often some sudden fright to which the patient has been exposed—and the remembrance of this fact, if nothing else, ought to make one very careful about playing practical jokes on children.

It is not a disease of very early infancy, but usually comes on between the ages of six and fifteen, during the second dentition,

and while children are approaching the threshold of manhood or womanhood.

The disease is characterised by a general unsteadiness of the muscles of the body, and this is generally well marked in the face. The face has an appearance as if a constantly-recurring wave of motion were passing over it. The eyes are unsteady, and are jerked about; the corners of the mouth are drawn this way and that; the cheeks and nose are constantly wrinkled; and the chin is alternately protruded and retracted; while the tongue can very often be seen moving unsteadily and in a jerking manner within the mouth. The limbs, as well as the face, generally suffer, and neither arms nor legs are quiet for an instant, but the child's body is in one constant state of fidget. The degree of movement in this disease varies immensely. It may be so slight as only to be observable occasionally, and then only in a very small degree; or it may be so excessive that the child requires to be constantly held in its bed to prevent its being jerked out upon the floor. These extreme cases are very terrible to see, and a child attacked in this way not unfrequently dies from the exhaustion caused by the excessive movement. Sometimes the choraic movement is limited to one side of the body. In average cases the child is unable to walk steadily, to sit steadily at table, and feeds itself with great difficulty. They are not to be trusted to carry any breakable articles, since their grasp is necessarily very uncertain. The movements cease during sleep, but in extreme cases the excessive amount of movement may prevent the child from getting to sleep.

There exists a curious relationship between this disease and rheumatism, and it has been very frequently observed that chorea often follows or is followed by an attack of rheumatism, or else that the families of children who suffer from chorea are very subject to rheumatic affections.

This disease is infectious! Such a statement may seem startling, but is nevertheless true; and it has been found again and again that if a child suffering from St. Vitus's dance be allowed to associate with its fellows, other children are very apt to become affected, and to acquire the trick of movement, as it were, by unconscious imitation. There have been genuine epidemics of this disease. The most notable, perhaps, is one which is recorded to have broken out at Strasburg in 1418. and as the sufferers made pilgrimages to the shrine of St. Vitus to obtain relief, the name of this saint has been given to the disorder. Although most common in childhood, it does occasionally make its appearance

(especially in women) at more advanced periods of life, and we occasionally meet with cases of it at twenty years of age, or even at more advanced ages. It occasionally happens that disease of the heart accompanies the disorder of movement, and diligent search should be made by the medical man in charge for the detection of the heart trouble, which can only be done by means of the stethoscope.

The treatment of this disease is simple, and happily it subsides, as a rule, without recourse to strong measures; but occasionally it proves very obstinate, resisting every attempt to alleviate it, and in some very few instances it proves fatal by the exhaustion which it causes.

The child's health must be very carefully attended to, and search must be made for any source of irritation which may help to keep up the trouble.

The teeth must be looked to, the digestion must receive attention, any errors in diet must be corrected, the bowels must be regulated, and diligent search be made for any evidence of the presence of intestinal worms, which are not infrequently a cause of this disorder.

The child should have a bed to itself, and the bedroom should be airy; but, and especially if the trouble have arisen from fright, an elder person should sleep in the same room, and a light should be burnt.

The lessons need not, except in the more severe cases, be abandoned, but they should be light and easy, and not such as will tax the child's physical or mental strength in any way.

A considerable time should be spent every day in the open air, and much benefit may be derived from the daily use of a cold douche bath. This should be taken before a fire if the weather be chilly, and it is often a good plan to let the child stand in warm water and pour the cold over it. The douche should be followed by gentle frictions with a rough towel.

For the movements themselves, the best cure is some form of drilling, and such children are particularly benefited by "deportment lessons." They should be made to practise rhythmical exercises with their limbs, and if these exercises be done, as they ought to be, to the sound of well-timed music, the good results will be more marked and quicker in appearing. In the Middle Ages in Italy the bite of a certain spider—the tarantula—was supposed to give rise to a disease, doubtless of the same type as the chorea of our times, and this disease was said to be cured by the execution of a certain dance, which derived its name from the tarantula itself. We fully believe the accounts we have heard of

this disorder, and we believe also that well-timed rhythmical movements are powerful in the alleviation of St. Vitus's dance.

In obstinate cases "Massotherapeutics" may be employed with much advantage. The ordinary massage is of very little good, but a systematic course of treatment under the direction of a physician skilled in such matters will usually effect a speedy cure. Rubbing the limbs with some bland application such as Chatteris Oil often proves useful.

Medicines should be given with two objects: to improve the general health, and to calm the movements. For the former purposes, cod-liver oil, iron, sulphate of zinc, quinine, arsenic, nux vomica, and strychnine have been used. An excellent remedy is Levico Water, a natural spring which contains both arsenic and iron in large quantities. It is imported in two forms, the mild with a blue label, and the strong with a red label. For children only the milder preparation should be employed—the one with the blue label—and of this from ten to fifteen drops should be given in a little milk three times a day after meals.

Iron in the form of tabloids of dialysed iron will be found most useful.

If the child cannot sleep, we must help it to do so by artificial means. The best remedies for this purpose are bromide of sodium—a five-grain tabloid (T. 19) at bedtime—and sulphonal, the dose of which is for a child four years old half a five-grain tabloid at bedtime.

Bromide of sodium (T. 19) and belladonna may help to subdue the movement during the daytime, and these medicines may be combined with the tonics.

SCALD HEAD.—This is a popular name applied to two or three distinct diseases of the scalp which resemble each other superficially. It is most common among scrofulous children. It not unfrequently commences as a slight redness with little watery heads which weep. This occurs in patches, a favourite situation being behind the ears, whence it creeps upwards towards the scalp, and sometimes completely covers it. The proper name for this form of the complaint is *eczema of the scalp*. The watery heads, which discharge a clear sticky fluid, are the characteristic features, and the discharge running amongst the hairs glues them together, converting the child's head into a revolting and loathsome mass.

If the child's head be irritated by the presence of lice, we get, instead of the clear discharge from the watery heads of eczema, a yellow mattery discharge from pustules, which on drying cakes the hair

into masses, and covers the scalp with a hard yellow skull-cap. This disease is known as *impetigo of the scalp*. It is particularly liable to occur in children of weak constitution, and, the children being usually scrofulous, the irritation of the inflamed scalp is sufficient to cause considerable enlargement of the glands of the neck. This impetigo is contagious, and has been conveyed from one child to another by exchange of head-dresses. Children suffering from this complaint should be kept away from school, and separated from their companions for a time.

The treatment of these two conditions consists, first in removing the cause, if any such exist in a tangible form. A careful search must be made in every case for the presence of lice or nits in the head, which must be destroyed by the application of carbolic acid and oil (one part to ten), or of white precipitate ointment (five grains to the ounce).

The next point in the treatment is cleanliness. The hair should be cut off, and the scalp should be thoroughly cleansed of all crusts and scabs, by prolonged bathing and soaking with warm water. This being done, the head is in a fit state for the application of remedies, but it is of no use to apply remedies to heads which have not been previously cleaned. The best applications for eczema are ichthyol-lanoline ointment and zinc ointment, either of which should be applied to the part with the point of the finger, the head being then covered with a skull-cap made of rag or linen.

For impetigo, the best application is the ichthyol-lanoline ointment, which should be applied in the same way. The head must be thoroughly and completely cleansed night and morning with ichthyol-lanoline ointment—and even though it take hours, it will be time well spent. It is well not to be afraid of cutting off the hair, and it is advisable to cut very wide of the disease. In cases of eczema of the scalp, it is recommended that the head should be washed with oatmeal and water instead of soap, as being less irritating.

Internal remedies and constitutional treatment must not be neglected, for it will be found that these diseases do not get well without them. In cases of impetigo, the administration of the beef and iron wine with quinine often acts like a charm, and under its influence the trouble ceases at once. It is often necessary to precede the tonic treatment by a brisk purgative, and a dose of grey powder—two one-grain tabloids at bedtime—is often administered with benefit. The various remedies mentioned for the treatment of scrofula are of service in these diseases. The diet must be carefully supervised, and every precaution taken to prevent the children stuffing themselves with trash.

SCARLET FEVER.—This is one of the most fatal of the diseases to which we are liable, especially in childhood, and when the disease becomes epidemic the mortality which it causes is often really terrible. It is the dreaded scourge of some families, and it is one of the well-recognised peculiarities of the disease that it falls upon some constitutions far more heavily than upon others.

The great cause of scarlet fever is contagion, and one person suffering from the disease becomes a centre of infection to others. There seem to be states of atmosphere, epidemic conditions, in which the disease is more easily spread than at other times; but whenever a case of scarlet fever occurs it is generally not difficult, if diligent search be made, to point with certainty to the source from which the poison has emanated. The healthy should hold no communication with scarlet-fever patients unless they themselves have already had the disease, and have thus earned an immunity from further attacks. Those in attendance upon scarlet-fever patients should remember that, though they may be incapable of suffering themselves, they may readily carry the disease to others.

The fact is now thoroughly established that scarlet fever may be originated by infected milk. A few years ago a very extensive outbreak of scarlet fever occurred in Marylebone, which was believed to be connected with the distribution of milk from a particular farm at Hendon. It was proved conclusively that not only had the milk been the vehicle by which the infection had been communicated, but that it had itself originated the disease. It was found that the cows themselves were not suffering from scarlet fever, but that they were all affected by a peculiar disease of the udder. Microscopical examination showed that the secretions of the incriminated cows contained a particular germ or microbe identical with that of scarlet fever. Moreover, calves inoculated with human scarlatina, exhibited the same symptoms as the Hendon cows. Our knowledge of this particular disease is as yet not sufficiently complete to enable us to employ the ordinary steps for the prevention of the infection of the milk, but in case of doubt and during the prevalence of any contagious disease, it is only a wise precaution to boil every drop of milk before using it.

A person having contracted the disease, a contagious particle having, as it were, been sown in his body, a certain period elapses before the symptoms become manifest. This is called the *period of incubation*, and in scarlet fever it is a very variable period, its length seeming to depend not only upon the recipient but on the giver of the poison also. We

often observe that, in the same soil and under the same condition, some seeds germinate sooner than others; and it is a very common observation that variations of soil, temperature, etc., are capable of causing great variation in the time which elapses between the sowing of the seed and the first appearance of the shoots. This incubative period in scarlet fever seems to vary between twenty-four hours and a week, and some say that as much as a fortnight sometimes elapses between the exposure to the fever poison, and the development of the disease.

The symptoms and severity of scarlet fever vary immensely. They may be so mild as scarcely to be perceptible, and may be so severe that death ensues within twenty-four hours of their first appearance. We shall first of all describe an attack of ordinary severity.

The child complains of "feeling out of sorts;" the appetite fails, and symptoms of feverishness make their appearance. There are chills alternating with flushings and a sense of heat. Headache is complained of, and very often vomiting is one of the first symptoms to attract attention. The pulse is quick, and if the temperature be taken it will be found considerably elevated. It may rise as high as 104° on the first day, or nearly six degrees above the normal temperature of health. The next symptom to attract attention is the sore-throat: and if the throat be looked at, the tonsils will be seen to be enlarged, and there is a general redness and swelling of the whole of the back of the throat. The tongue also presents a characteristic appearance. It is generally somewhat furred, and at its tip a number of fine red points will be seen showing through the white fur, giving the end of the tongue an appearance very like that of a strawberry, so that the "strawberry-tongue" of scarlet fever has become one of the recognised terms of medicine. The reader must be warned, however, that this condition of tongue is common in other states besides scarlet fever, and it is impossible to distinguish scarlet fever by the appearance of the tongue alone, unless the other symptoms be present also. With these symptoms there is often some sensation of heat about the skin, and if the patient be asked to clench the hand, it will often occasion a feeling of tension. Sometimes within twelve hours, and always before the lapse of forty-eight hours, after the first symptoms, the characteristic rash of scarlet fever appears. It appears first at the root of the neck and upper part of the chest. It consists of a number of fine scarlet points, and the skin looks sometimes as if it had been covered with a bright scarlet powder. These points may coalesce in places, and then we get scarlet patches. The colour varies, and may be of any shade of red; or occasionally the eruption is

dusky in appearance. When skin is pressed upon with the point of the finger, or put upon the stretch, the colour of the points fades. The rash spreads from the chest over the face and trunk, and over the arms and legs also. It reaches its maximum degree of intensity in three or four days, and then begins to fade, and usually by the eighth or ninth day it has completely disappeared. In favourable cases the other symptoms subside with the eruption: the temperature falls, the pulse sinks to its normal rate, the tongue cleans, and the patient begins to feel tolerably well again.

At this period the skin begins to scale, or, in other words, *desquamation* commences, and this may be looked upon as quite as characteristic of the disease as any of the other phenomena we have enumerated. The amount of scaling is proportional to the amount of eruption, and varies from a slight scurfiness of the skin to the downright peeling off of solid flakes, which are most pronounced usually on the soles of the feet and the palms of the hands. These are the spots where evidence of scarlet fever lingers longest, and whenever a child is seen with its palms or soles in a peeling condition, that child is to be regarded with suspicion, as it is probably infectious. The duration of the peeling period is very variable. Occasionally several weeks elapse before the skin is perfectly free from any sign of it.

About the time that the skin begins to peel, the patient is very liable to have an attack of rheumatism, accompanied by swelling of the joints. The knees, elbows, and hips are usually affected. The temperature rises again, and it occasionally happens that a genuine relapse takes place, all the phenomena of the fever being repeated. In a favourable case the peeling will have ceased and the patient will be convalescent at the end of three weeks.

All these symptoms, as we have said, vary very much in severity. There may be but little eruption, and no sore-throat worth speaking of, and then the case is spoken of as one of simple scarlatina, or *scarlatina simplex*. When the throat symptoms are very bad it is called *scarlatina anginosa*, and when all the symptoms except the eruption are present it is spoken of as *scarlatina without eruption*; and it is important to remember that such cases are recognised as occurring.

It is supposed by some that there is a difference between scarlet fever and scarlatina, and we not unfrequently hear people say that "So-and-so has not got scarlet fever, but only scarlatina." It is right that people should thoroughly understand that the two diseases are actually the same, although the word "scarlatina" is usually applied to the milder

cases. The mildest possible cases are capable of producing by their contagion the severest cases in others, and no matter how mild the actual fever may be, the sequelæ or consequences of that fever may be of the most serious and dangerous nature.

This leads us on to speak of the complications and sequelæ of scarlet fever. The condition of the throat may be so bad from the first as almost completely to overshadow the other symptoms of the disease. The throat may be immensely swollen internally, and the tonsils may be so much enlarged as completely to block the passage of the throat, and to threaten the patient with suffocation. The throat condition may persist long after the other symptoms have subsided. There may be deep-seated inflammation all round the throat, so that the skin feels hard, tender, and puffy, like one large carbuncle surrounding the neck. Matter may be formed beneath the skin, and in bad cases this matter may be discharged by a series of openings either inside the throat or outside. The condition of the throat may be so severe as to kill a patient, either by exhaustion or by blood-poisoning. It is not at all uncommon to have the glands of the neck inflamed and suppurating during the sore-throat of scarlet fever. Sometimes the nose is attacked as well as the throat, and the patient is troubled with a discharge therefrom which may be very offensive. The ear also may be attacked, and we sometimes get a discharge from the ear followed by a destruction of the tympanum, or drum, and permanent deafness. The bones of the ear may be damaged, and then there is occasionally a risk to the brain.

The most serious and the most common consequence of scarlet fever is undoubtedly disease of the kidneys, which usually comes on during the decline of the fever, and while the desquamation of the cuticle is in progress. The early symptoms of this trouble are only to be detected by means of a chemical examination of the urine, which should be performed by the medical man at frequent intervals, in order that no time may be lost in checking the symptoms should they appear. If the urine becomes thick, smoky-looking, or bloody, the kidneys are certainly diseased; or if the legs swell, or the eyelids are puffed up in the morning, we shall generally be right in coming to the same conclusion. The slightest appearance of disease of the kidneys should not be treated lightly; for if this trouble be not skilfully subdued, it may go on till it causes permanent dropsy and disease of the heart, and condemns the patient to be a valetudinarian for the rest of his life.

Lung disease is occasionally set up during scarlet fever, and patients may be attacked with bronchitis, pneumonia, pleurisy, or consumption.

Sometimes also, and especially during the persistence of the rheumatic symptoms, disease of the covering membrane of the heart (*pericarditis*) is established. Thus it will be seen that scarlet fever is not only a dangerous disease in itself, but that it is beset with subsidiary dangers, into any of which the patient may fall if he be not nursed and guarded with the greatest care.

In the treatment of a case of scarlet fever we have not only to consider the safety of the patient himself, but we have, as far as possible, to guard against his being a source of danger to others. Directly the disease is detected, or, indeed, directly it is suspected, the patient should be isolated. He should be put to bed and kept there until the skin has peeled; for up to that time he cannot be considered as a safe companion for others.

Everything should be moved out of the room that is not absolutely needed. The carpet, including the stair-carpet, should be taken up, and window curtains be taken down, and everything in the shape of a wardrobe or chest of drawers should be removed; for these articles can well be dispensed with, and if allowed to remain in the room, will one and all become lurking-places for contagious particles.

It must be borne in mind that every excretion of a scarlet-fever patient is infectious. The breath expired through the ulcerating throat and nose is loaded with germs of the disease. The urine and the evacuations from the bowels are contagious in the highest degree: and above all things it is to be remembered that every particle which flies from the roughened surface of the peeling skin is a particle with an unlimited potentiality for mischief, which being carried by the air, or in the folds of a garment, or even in a letter, may spread scarlet fever literally throughout the world.

No patient suffering from scarlet fever can be considered free from infection until the process of peeling has absolutely ceased.

While the disease is in progress, every effort should be made to reduce the dangers to a minimum. The patient should be moved to the top of the house, and the whole of the top floor, or the whole of one division of the house, should be given up to the invalid and his attendants, who should not be too numerous, and who should hold no communication with the other inmates of the house.

The nurse should wear a cap and a long white apron reaching from the chin to the feet. She should have her stated hours of duty, and should not be required to work night and day as well. She should avoid going into the sick room when fasting, or when in a depressed condition

of health or spirits. She should have plenty to eat, and will be all the better for a moderate allowance of wine. She should have nine hours' sleep in her own room and should go out every day. She must neither eat nor drink in the sick room. She should be furnished with a bottle of "Soloids of Compressed Corrosive Sublimate." These if taken internally are poisonous, but one dissolved in a pint of water forms a one-in-a-thousand antiseptic solution, which must be used for washing the hands, face, and hair.

Over the door of the sick room a curtain should be hung, and this curtain should be kept constantly moistened with carbolic acid dissolved in water (half a pint of the common acid to two gallons of water).

The bedroom should be kept thoroughly aired, and in summer the windows must be liberally opened. The patient must be kept clean, and the bed- and body-linen be frequently changed. The change of linen should be effected quietly, and the soiled linen, both of the nurses and the patient, should be placed in earthenware pans filled with a strong solution of carbolic acid, or with the corrosive sublimate solution, and provided with a cover. All excretions should be at once disinfected with carbolic acid, and thrown away immediately. All plates, dishes, and other utensils used by the patient should, when done with, be immersed in the disinfecting solution; and the walls of the room, as well as the floor and furniture, should be cleansed every day with a damp cloth.

As to the patient himself, he must be kept perfectly clean. The mouth and nose must be scrupulously cleaned by means of a camel's hair brush, or a syringe, with a weak solution of Condyl's Fluid, or a solution of chlorate of potash made by dissolving one or two of the chlorate of potash tabloids in a tumbler of water.

It is a good plan also to keep the surface of the skin constantly greased with lanoline cream or olive oil, to which a little carbolic acid has been added. The hair should be cut short, and that which is cut off should be burnt. If the patient be old enough or well enough to enjoy reading, or being read to, it must be remembered that all his books, and, in fact, everything that cannot be washed, must be burnt, and on no account be brought out of the sick room. When the patient is sufficiently recovered to leave his room, he should only go out wrapped in a blanket, and be put at once into a warm bath, where the whole of the body should be carefully washed with the corrosive sublimate disinfecting fluid, or the corrosive sublimate "Soloids", dissolved in water. He should then be dressed in a complete set of clean clothes, and may then mingle with his friends without being a source of danger to them.

The room lately occupied by the patient must next receive attention. In the first place it should be disinfected by means of sulphur fumigation. This is done in the following manner: Take an ordinary slop-pail, and half fill it with water; then across the top of it place the fire-tongs. On the tongs lay the lid of an old saucepan, and in this put half a pound or a pound of common brimstone broken into lumps. Then shut all the windows closely, place a red-hot coal in the middle of the sulphur, and immediately leave the room. Shut and lock the door, and block up any chinks which may be left in it. This manœuvre causes the escape of immense quantities of sulphurous acid gas, which is fatal to every living thing, both animal and vegetable, inclusive of the germs of disease. After a lapse of twenty-four hours, it will be possible to enter the room, when the windows may be opened. The room, including the articles of furniture remaining in it, should then be thoroughly scrubbed with the antiseptic solution made by dissolving eight of the "Corrosive Sublimate Soloids" in a gallon of water. The woodwork should be repainted and enamelled, and the ceiling whitewashed. The wall-paper should be stripped off and burnt, and the walls limewashed before being repapered. The bedding should be sent to an establishment where there is a suitable apparatus for conducting steam disinfection in an efficient manner. After an outbreak of scarlet fever in a house, the condition of the drains should be carefully investigated.

If the precautions we have enumerated were attended to more scrupulously and carefully than is usually the case, we believe that we should hear less frequently of houses being infected with scarlet fever for years at a time, and remaining tenantless because of the general belief that "it is impossible to get the scarlet fever out of them." If the attack of scarlet fever be mild, the friends are apt to forget how terrible the disease may be, and are unwilling to submit to the irksomeness of separation for a time from their friends and children.

We may mention here, that if a scarlet fever patient be moved while the infection still be on him, and if others, not having been forewarned, suffer harm in consequence, a civil action for damages may be brought against those who have been instrumental in importing this disease into a house. Such actions have been brought and damages have been recovered.

As regards the administration of medicines in scarlet fever, we may say at once that in favourable cases no drugs are necessary, and a child will pass successfully through a mild attack of the disease without taking a single dose of medicine. It is, however, a good plan to put three or four

one-minim tabloids of tincture of aconite and three or four one-minim tabloids of tincture of belladonna—the number of tabloids being regulated by the age of the child—into a tumbler of cold water and give a teaspoonful of this every hour for the first twenty-four hours. The medicine checks the upward progress of the disease, lowers the pulse, moistens the skin, and relieves the soreness of the throat. The sooner it is given the better, for the delay of a couple of hours may be of importance.

The patient must be kept cool and quiet. The temperature of the room should be 64°. The diet should be exceedingly simple, and should consist chiefly of milk and Rosbach or some other natural table water.

For the sore-throat the patient should be encouraged to suck little pieces of ice, allowing them to melt slowly in the mouth. The tabloids of chlorate of potash, and of chlorate of potash and borax are very useful. If there is much prostration a little wine or good old brandy will do good.

The mouth should be kept clean by rinsing it out frequently with a few drops of Salodent in a wineglass of tepid water.

If the rheumatic pains in the joints supervene, there is nothing more efficacious than quinine, which may be given in tolerably strong doses (three or four grains) every three or four hours. As local applications, amber oil, or amber oil and hazeline will be found useful. Chatteris Oil is a good antiseptic preparation for external medication.

There are certain legal responsibilities involved in connection with the outbreak of scarlet fever in a house. The regulations respecting the compulsory notification of infectious disease vary somewhat in different towns, but they are in all cases deserving of careful study. The reasons advanced in favour of making known to the sanitary authorities the existence of scarlet fever in a house are based on the danger to the community which results from the secrecy often maintained in such matters. In most towns the duty of giving notice is shared equally by the occupier of the house and the doctor in attendance. The fine for failing to comply with the provisions of the section is from two to five pounds for the first offence, and ten pounds for the second. In addition to this the incriminated person may find himself subjected to a good deal of unwelcome publicity. The information must be given to the medical officer of health, or to the sanitary authority at his office, and the earlier this formality is complied with the better.

It is a penal offence to knowingly expose any person to the infection of fevers, and landlords and lodging-house keepers are liable for any loss or expense which may be incurred through their negligence. By the

provisions of the Public Health Act, 1875, it is enacted that—"Any person who knowingly lets for hire any house, room, or part of a house in which any person has been suffering from any dangerous infectious disorder, without having such room, or part of a house, and all articles therein liable to retain infection, disinfected to the satisfaction of a legally qualified medical practitioner, shall be liable to a penalty not exceeding £20."

It is stated that for the purpose of this section the keeper of an inn shall be deemed to let for hire part of a house to any person admitted as a guest into such inn.

It is further enacted that—"Any person letting for hire, or showing for purpose of hire, any house or part of a house, who on being questioned by any person negotiating for the hire of such house or part of a house as to the fact of there being, or within six weeks previously having been therein, any person suffering from any dangerous infectious disorder, knowingly makes a false answer to such a question, shall be liable at the discretion of the court, to a penalty not exceeding £20, or to imprisonment, with or without hard labour for a period not exceeding one month."

This section meets the case of seaside lodging-house keepers who keep secret the fact of there having been a case of scarlet fever in the house, and too often let their rooms to some unsuspecting person, with disastrous results. Before taking rooms it is as well to put the question definitely, so that there may be no possibility of mistake.

Other sections of the Public Health Act bearing on the subject are as follow :—

"Any person suffering from any dangerous infectious disorder, who wilfully exposes himself in any street, public place, shop, inn, or public conveyance, or enters any public conveyance without previously notifying to the owner, conductor, or driver thereof that he is so suffering; or, being in charge of any person so suffering, so exposes such sufferer; or gives, lends, sells, transmits, or exposes, without previous disinfection, any bedding, clothing, rags, or other things which have been exposed to infection from any such disorder, shall be liable to a penalty not exceeding £5.

"Every owner or driver of a public conveyance shall immediately provide for the disinfection of such conveyance after it has, to his knowledge, conveyed any person so suffering from a dangerous infectious disorder; and if he fails to do so he shall be liable to a penalty not exceeding £5."

SCROFULA.—This is a constitutional condition which is often confounded with, but is distinct from, tuberculosis. The children who manifest a tendency towards scrofula are sometimes called “strumous,” and the old name of the “king’s evil” is still occasionally applied in country districts to some of the manifestations of the disease.

The children who are the victims of scrofulosis differ widely in appearance from the tubercular children. Instead of being lithe, active, and elegant, they are heavy-looking and lymphatic, with muddy complexions, thick skins, coarse straggling hair, and clumsy limbs. The tubercular children are pretty, the scrofulous children are ugly, and the rickety children are deformed. The tendencies of the scrofulous constitution are of a peculiar kind, and are quite distinct from those of the other two constitutional conditions with which it may be confounded.

There is a liability to enlargement of the lymphatic glands at slight causes, or from no obvious cause. The glands under the jaw and at the side of the neck are very liable to enlarge, and the irritation of cutting teeth or a slight cold in the throat is quite sufficient to cause great enlargement of the glands. The enlargement may only be slight, and the gland may feel like an almond or olive beneath the skin, but it may be so great as to cause the most terrible deformities, and completely obliterate the proper lines of the face, and cause the unhappy child to look terribly ugly and ghoulis. The mere enlargement of the glands is very trying both to the patient and the friends; but when the glands suppurate, as they often do, and leave scars which last a lifetime, the annoyance is increased.

Besides the enlargement of the glands, the patients are liable to inflammation of the eyes, which is often very difficult to cure. The edges of the eyelids get reddened and much inflamed, and little ulcers form on the eyes themselves. This causes a copious discharge from the eyes and lids, with a gluing together of the eyelids after sleep, a matting together of the eyelashes, and also a great intolerance of light.

Diseases of the skin are likewise common among scrofulous children, who are liable to get chafed in places where folds of skin come in contact, to suffer from watery discharges behind the ears and on other parts of the body. A tendency to the different varieties of “scald head” is frequently observed. (*See SCALD HEAD.*)

Patients are often troubled with discharges from the nose and ears, and the digestion is usually bad from a chronic inflammatory condition of the stomach. The joints are the seat of chronic inflammations, which not unfrequently endure for years, and ultimately wear the patient

out with exhaustion. "White swellings" of the knee are most common in the scrofulous constitution. Diseases of the hip and ankle joints are also of frequent occurrence.

Occasionally these children die with symptoms not unlike those of acute tuberculosis (*see* TUBERCULOSIS), and we get diarrhœa, general inflammation of the bowels accompanied by tenderness (*peritonitis*), and in some instances a deposit of tubercles may take place in the lungs or on the membranes of the brain. This, however, is rare, and when it does occur it must be regarded as a grafting of tuberculosis on the scrofulous constitution.

The treatment of scrofula has undergone great changes in modern times. This was the disease over which the sovereigns of England were supposed to exercise a supernatural power. These fanciful ideas are now exploded, and we prefer relying on ordinary domestic and hygienic measures.

The great point is to guard against the several consequences of the constitutional condition. The child must be kept from all sources of irritation, must be properly fed, and must spend a great part of its time in the open air. The skin must be kept scrupulously clean, for any impurity of it may cause, not only troublesome sores and eruptions, but glandular enlargements as well.

The inflamed joints must be carefully attended to by a surgeon, as neglect may lead to stiffening of the limbs, or distortion, or permanent lameness. Glandular enlargements, until they suppurate, are best treated by hot fomentations.

The eyes, if they become inflamed, must be kept scrupulously clean, and every particle of discharge must be removed night and morning by careful and prolonged fomentation. The eyelids may be prevented from adhering by anointing them with some simple ointment, such as cold cream. The strong mercurial ointments are not to be used, except by medical advice. There is great intolerance of light in these cases, and it is sometimes customary to keep children indoors, and in darkened rooms. This is rarely necessary, and it is better for the child to be provided with a shade, and a good thick veil, and taken out of doors whenever possible. The application of blisters behind the ears, and still more the employment of a seton, is a measure which is necessary only in the very rarest cases, and would only be warrantable on the recommendation of an ophthalmic surgeon. When ulceration of the eyes takes place, there is always some risk of permanent impairment of vision, so that the child, in these cases, ought to have the advantage of early advice.

Scrofulous children require to be well and liberally fed. They should have an abundance of meat, fresh eggs, milk, and cream. Vegetables are a valuable addition to the dietary, but potatoes should be given sparingly. Puddings and starchy materials do more harm than good, whilst cakes, oranges, apples, and sweets, between meals should be strictly forbidden. In case of great delicacy a little wine and water at dinner is permissible.

In the way of purely medicinal treatment there is a great deal to be done. Iodine, lime, and iron are the staple remedies. Dissolve an ounce of chloride of calcium in a pint of cold water, and give a tablespoonful of this three times a day. In addition, the child may be given ten drops of syrup of iodide of iron in a wineglassful of water after each meal. The tabloids of dialysed iron are most useful, and their administration may be kept up for weeks at a time.

Other excellent remedies for scrofulous children are cod-liver oil, Kepler Extract of Malt, Extract of Malt and Cod-liver Oil, and Extract of Malt with Phosphates. A tablespoonful of Beef and Iron Wine in a wineglassful of water aids digestion and may be given at dinner.

If the bowels are confined, an occasional tabloid of rhubarb and soda will get over the difficulty. A small dose of Hashra Tea will answer equally well. Sometimes a gentle action of the bowels may be ensured by rubbing the abdomen night and morning before the fire with half a teaspoonful or more of Chatteris Oil.

When the glands in the neck are enlarged, or the joints show a tendency to the formation of matter, a tabloid of a tenth of a grain of sulphide of calcium should be given four times a day, after meals, the strength being maintained by giving after dinner a teaspoonful of Kepler Extract with iodide of iron.

Change of air is often indispensable, and the east coast of England has acquired a deserved reputation for the cure of these cases. Margate, and the other towns in that neighbourhood, are much frequented by scrofulous children. Bracing air is essential for the successful treatment of these cases. Residence in low-lying clay soils does much to encourage the predisposition to this diathesis, whilst sandy and gravelly places with a dry air prove of much benefit by increasing the vigour of the constitution. A dry air is of especial importance, and if possible a place of residence should be selected which is warm enough to enable the child to get out almost every day during the winter months.

SORE-THROAT.—This is a symptom of many and various conditions. Thus we have the sore-throat due to cold; acute enlargement of the tonsils with or without the formation of abscesses, constituting the condition known as *tonsillitis*, or quinsy; and chronic enlargement of the tonsils without inflammation, which is a common occurrence in weakly or scrofulous children. Sore-throat is also often the first symptom of many dangerous conditions, such as croup, diphtheria, and scarlet fever, and it is generally a prominent symptom in measles, German measles, small-pox, and other fevers.

It becomes necessary, therefore, to be able to distinguish between these various conditions, and in order to do so one must know what is to be seen and what is to be looked for in the throat itself. When the mouth is opened we usually see the arches of the teeth, the roof of the mouth, and the tongue, the two latter meeting and obstructing any further view. If the tongue be depressed by means of a tongue-depressor or the handle of a spoon, and if, as we depress the tongue, we ask the patient to take a full breath we are enabled to see the throat itself. Stretching across the back of the throat is the curtain of the soft palate, from the middle of which there hangs the uvula, a fleshy pendulous body, about a quarter of an inch long. On either side the soft palate is seen to split, as it were, into two parts, by which it is attached to the sides of the mouth. These two parts, called the anterior and posterior "pillars of the fauces," include between them the tonsil, a body the size of a hazel-nut, with a slightly dimpled surface. The arrangement of the parts may be compared to that seen in the roof of a Gothic church, where the groinings from the windows on either side meet in a central boss or pendant. The central boss is the uvula, the windows are the tonsils, and the groinings are the pillars of the fauces uniting to form the lower edge of the soft palate. The normal colour of these parts is a pink, like that seen in the lips.

In a really bad case of sore-throat the amount of swelling of the parts may be enormous. The tonsils may be as big as Tangerine oranges, the soft palate swollen and thickened, and the uvula enlarged to the size of the little finger, and dropsical. The colour of the parts is either livid or bright scarlet, and the amount of tenacious secretion may be considerable. In cases of extreme swelling of the throat, swallowing is impossible, or is a matter of great pain and difficulty, and occasionally the respiration is very seriously interfered with. This condition of throat is most commonly seen in ordinary quinsy, but it occurs also in scarlet fever and some other forms of blood-poisoning. A patient in

this condition can never be considered free from danger, and skilled and constant assistance should be at hand.

The sore-throat of scarlet fever cannot be accurately recognised, but its sudden occurrence and bright scarlet appearance are the facts which generally arouse suspicion. The appearance of the scarlet fever rash soon decides the question.

Diphtheria is known by the growth of a false membrane, closely resembling a piece of wet wash-leather, which begins at one point and spreads, usually equally in all directions. It is important not to mistake the natural secretion of the tonsils for the diphtheritic membrane. The tonsillar secretion appears on the tonsil itself, and is usually scattered over its surface in a series of points.

The facts which show a sore-throat to be serious, if not dangerous, are—(1) great swelling of the throat itself, with obstruction to swallowing and breathing; (2) a scarlet appearance of the throat; (3) the growth of false membrane; and (4) grave constitutional symptoms: great weakness and prostration; a weak, feeble, and quick pulse; headache, shivering, and any undue elevation of temperature, or the appearance of any of the fever-rashes. Any of these symptoms indicate that the sore-throat has passed the bounds of the trifling ailment usually included under that name. Enlargement of the glands of the neck is an indication of severity. If the breath be offensive, or the patient expectorate blood or matter, this would show that the discharges are becoming decomposed.

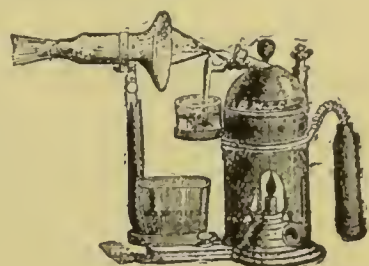
The treatment of sore-throat in children is a matter of grave importance. If the child is feverish and the tonsils are red and enlarged, we probably have to do with quinsy, and there is every necessity for prompt action. Aconite is the best remedy. For a child four years old, dissolve four one-minim tabloids of tincture of aconite in a tumblerful of water, and give a teaspoonful of this every ten minutes for the first hour, and then hourly for six or eight hours. If the throat presents a bright, scarlet colour, belladonna may be substituted for the aconite after the fifth hour from the commencement of the treatment.

Sucking small pieces of ice will be found grateful to the patient.

It is a good plan to rub the throat externally, night and morning, with Chatteris Oil, or some similar preparation possessing bland and slightly stimulating properties.

Children, as a rule, do not inhale well, but all the benefit of an inhalation may be ensured by the use of what is known as the

complete "Steam Atomiser." It is a comparatively expensive apparatus, but it is solidly built, and as the boiler is of copper and is carefully tested, there is no possibility of an explosion. It is a most useful form of apparatus, and will last a lifetime. The steam from the apparatus will soon afford relief, and if a few drops of pure terebene (V. 10) or Pinol (V. 11) are added to the water in the bottle, much benefit will be experienced.



STEAM ATOMISER.

Children with acute tonsilitis have much difficulty in swallowing, and solid food is out of the question. The best food is milk—iced by preference—with, from time to time, a little jelly or beef tea. After a few days the child naturally gets tired of milk, and then peptonised milk may be substituted with advantage; when this palls, a change may be made to artificial koumiss, which is made as follows:—Fresh cow's milk, six ounces; fresh cream, half an ounce; Kepler Essence (not the extract), one tablespoonful; and Rosbach Water enough to make half a pint.

In relaxed sore-throats a somewhat different mode of treatment should be adopted. The child should be braced up in every way. The throat should be brushed over with glycerine of tannin, night and morning. If the child is old enough a tabloid of chlorate of potash and borax should be sucked three or four times a day. If the child can use a gargle, ten drops of Salodent in half a tumbler of cold water may be employed. The general tone of the system should be maintained by the use of dialysed iron, beef and iron wine with quinine, Kepler Essence, and other remedies. The bowels should be relieved by an occasional dose of Gregory's Powder, or Hashra Tea.

Children who are subject to relaxed sore-throats often derive very great benefit from the removal of the tonsils. It is certainly not a pleasant operation, but by the use of cocaine the pain is reduced to a minimum. Relaxed sore-throats and enlarged tonsils are frequently the direct result of living on a clay soil. When there is any possibility of a choice of residence a sandy or gravel soil should be selected. A southern aspect is of much importance, but of still greater importance is a dry, bracing air.

The frequent occurrence of sore-throats in a household may be taken as pretty good proof that the sanitary arrangements are not perfect. In all probability the drains are untrapped, and there is a leakage of sewer

gas. This is one of the first points to be investigated in taking a new house.

SPINAL DISEASE.—This is one of those serious diseases of childhood against which every parent should be on his guard.

When attacked, the child attempts by every means in its power to save the spine from the weight of the head. It walks slowly and with fear, and seeks all the aid it can get from the furniture. The patient may be seen creeping from one part of a room to another, clinging to the rim of a table, or nervously shifting from one chair to the next. There is often pain in the stomach and a catching of the respiration, and this, if combined with any tenderness of the spine or any prominence of the bones, should at once arouse suspicion, and cause the calling of professional advice.

Spinal disease occurs chiefly in sickly children of a tuberculous or scrofulous constitution. It ends, if not properly attended to, in ulceration of the bones of the spine, hopeless deformity, exhausting abscesses, and death. It is one of those diseases which is entirely beyond the range of domestic medicine, and we merely mention it that those who have the care of children may have a knowledge of its existence. It is sometimes caused by accident, such as a fall or blow, but depends usually more upon constitutional than accidental conditions.

The only treatment is to call in a surgeon, and if one be not readily accessible, to keep the child in bed until the necessary advice is forthcoming.

HIP DISEASE is a disease of early childhood to which the scrofulous and the sickly are peculiarly liable. It is very necessary to be on one's guard against it.

The child limps and goes tenderly on one leg. The leg of which the hip-joint is diseased has usually the thigh slightly bent forward, the knee bent a little, and the toe turned inward. There is often pain in the hip, but quite as often or more often, perhaps, the child complains of pain in the knee, and it is very important to remember that *pain in the knee may be the most prominent sign of commencing disease of the hip*. In the early stages the disease can be successfully cured, but if allowed to go without treatment, it ends in destruction of the hip-joint, abscesses which may burrow both internally and around the joint, and the death of the child after a painful and lingering illness.

The treatment of this disease is beyond the scope of non-professional persons. The advice of a surgeon (not a spinal or bone specialist, nor an orthopædic blacksmith) should be sought, and the case be left entirely to his skilled treatment.

STAMMERING.—There is nothing more likely to interfere with the wordly advancement of a child than stammering, and consequently no effort should be spared to check it directly a child shows any tendency towards unsteady utterance. It is one of those disorders which is engendered by imitation and example, and it is therefore of the greatest consequence to remove children away from any chance of their picking up so dangerous a habit (for it is more a habit than a disease), and one which it is so difficult to shake off when acquired.

Stammering is rarely congenital, it is almost always acquired, and very often comes on while the child's general health is weakened by some of the common diseases of childhood. It is not necessary to describe so common a complaint. It is due to unsteady action—a sort of chorea—of some of the muscles used in vocalisation or articulation (more often the latter, however), and it is generally found that while mere sound is produced without difficulty, articulate speech is impeded to a greater or less extent. Careful examination may enable one to determine where the failing exists, and by making the child repeat slowly the letters of the alphabet, we may find that some letters occasion a greater difficulty than others. These are generally the labial sounds, such as P and B, but occasionally the fault is greatest with other sounds. Stammering in many cases is a mere passing trouble, and exists only during some temporary impairment of health, and when the child gets strong, its stammering disappears. These children are sometimes nervous and shy, and their trouble is often much aggravated if general attention be directed to them.

To cure stammering the first thing is to gain the child's confidence. One must appear not to notice the trouble, treat the child with great kindness, descend to its intellectual level, and encourage it in a friendly way to talk. Very much may be done by exercising the voice, and if the child can sing, or has any taste for music, it should be encouraged in every way, for stammerers can always sing without hesitation, and if this fact becomes plain to the child, the moral effect of such a discovery cannot be over-estimated. The child should be placed under the care of someone who has experience in dealing with such matters. Casual

singing lessons are of very little use. A thorough course of instruction in breathing is necessary. It must be remembered that what is required is not to teach the child to sing, but to enable him to talk.

Not only can stammerers sing, but they can invariably talk if they alter the pitch or the rhythm of the voice, and they should be encouraged to learn by heart pieces of poetry, which they should recite with great care. Never allow a child to "haggle" over a word. If its utterance is checked, bid it stop at once, give up all effort, and begin again at the beginning. Recitation ought to be part of the education of every child. A proper command of the voice is only acquired by practise, even by those who have great natural aptitude for oratory, and the systematic rhythmical exercise of the voice of stammerers must be regularly persevered in for months.

Perseverance will be rewarded by success in a very large number of cases. If the child fail with some sounds more than others, it should practise those sounds with diligence. If, for example, P be its stumbling-block, it should be encouraged, by a small reward, to repeat, very slowly, very distinctly, and without faltering, some lines in which this letter recurs often, as in the well-known nursery exercise—

"Peter Piper picked a peck of pepper."

STROPHULUS.—(See RED GUM.)

THRUSH.—This is a very common disease, especially among the poor, with whom every child is expected to pass through its attack of thrush almost as a matter of course.

The disease is due to inflammation of the lining membrane of the mouth, which generally goes on to the production of ulcers, and on the inflamed ulcers there come white patches, which are due to the growth of a fungus, a white mould, in fact, known as the *Oidium albicans*. It is highly probable that the inflamed and ulcerated condition of the mouth is prior to the growth of the fungus; but it also seems probable that this fungus, directly it has begun to grow, helps to keep up the inflamed condition, so that the two elements of this disease lean upon each other, as it were, for mutual support. If a little of the white patch be placed under the microscope, the fungus may be clearly seen, and those who possess a microscope may be interested in looking at it. Place a little particle of the white substance on a glass slide, place upon it a drop of solution of potash, and then cover with a covering glass.

The fungus, when magnified by a quarter-inch object-glass, looks like a number of branching threads. The ulceration and fungous growth sometimes travel through the intestines, and the child is often troubled with diarrhœa, and sometimes inflammation round the lower opening of the bowel. When this occurs, the thrush is said to have "passed through."

During an attack of thrush the health of the child usually deteriorates very much, and occasionally even children die of the exhaustion caused by the diarrhœa. Strong children ought not to have thrush, and whenever the disease breaks out it is a sign of something wrong, either in the child itself, or else in its management. If children were kept as scrupulously clean as they ought to be, we should undoubtedly hear less of this disease. In the majority of cases it arises from injudicious feeding.

A child with thrush should be fed entirely on milk, and if it be a year old, or upwards, a little beef tea may be added. It is a good plan to peptonise the milk. If the child is being fed on any of the numerous patent farinaceous foods, they should be discontinued for a time. If fed by hand the feeding-bottle already described should be used. Care must be taken that the feeding-bottle is clean, and that no particles of sour milk are clinging about the lips and stopper or the tube. If the child is being suckled, the mother's breast should receive attention, to be sure that it is in a fit state for such a purpose. A little lime water should be added to the child's milk if the diarrhœa is very severe—in the proportion of two tablespoonfuls to half a pint of milk. If this should fail to arrest the diarrhœa, it is often advisable to give a little grey powder—say a third of a grain tabloid crushed and given in a teaspoonful of milk every four hours for a couple of days.

The child must be kept scrupulously clean, and its mouth must be washed after every meal, all particles of milk being removed by means of a camel's hair brush dipped in Salodent and water. The best application for the destruction of the fungus is a solution of sulphite of soda, or a very weak solution of carbolic acid—one part of acid to sixty of water. The fungus being destroyed, the ulcerations will heal, and the inflammation subside. The application of glycerine of borax, or borax and honey, is often of very great service.

As an accessory measure active steps should be taken to improve the health. Syrup of iodide of iron, Kepler Extract with iodide of iron, essence of malt, chloride of calcium, and beef and iron wine will all be found useful. The bedroom should be well ventilated, and the child should have as much fresh air as possible.

It occasionally happens that older people have thrush, and we sometimes see, during the course of severe fevers, when patients are too weak to cleanse their mouths properly, a growth of the *oidium albicans* on the mucous membrane of the mouth. In these cases a gargle of Salodent and water will usually effect a cure. The same thing occurs, too, towards the termination of chronic complaints of long standing; but whenever it occurs, it may always be taken to indicate that the patient is in a state of very great weakness.

TONSILS, ENLARGEMENT OF.—Sickly children, especially if they be scrofulous, and many children also who are not otherwise out of health, suffer from great enlargement of the tonsils—the two almond-like humps which are seen at the back of the mouth. Children who have large tonsils usually snore; and if a child snores, its mouth should always be examined. The tonsils may swell up to five or six times their natural size, and may, in fact, become so large as to seriously interfere with respiration. The tonsils may become acutely enlarged in many conditions, as for example, inflammation of the tonsils themselves (or quinsy), scarlet fever, and diphtheria. Having been enlarged from any of these causes, they are slow to return to their natural size.

The treatment of enlarged tonsils must be both constitutional and local, and in many cases constitutional treatment alone will effect a cure.

In the first place the question of locality will have to be considered. Children with enlarged tonsils are never well if allowed to live on a clay soil. Sand or gravel is essential for their existence. They want sun and plenty of dry bracing air, they should be kept out all day long and not shut up in stuffy schoolrooms.

They want medicine, not of necessity nasty medicine, but tonic health-restoring medicine. All children take the various preparations of extract of malt without difficulty. The best for children with enlarged tonsils are the Kepler Extract with iodide of iron, the extract with hypophosphites, and the extract with phosphates. Some form of general constitutional treatment will have to be kept up for weeks, and possibly for months.

For the local condition, the application of glycerine of tannin is useful, and much benefit may be derived from sucking tabloids of chlorate of potash or chlorate of potash and borax. A tabloid of dialysed iron sucked slowly three or four times a day is a most useful astringent.

In very chronic and obstinate cases guaiacum is a useful remedy. The best plan is to give a guaiacum and sulphur tabloid three times a day after meals, until one hundred have been taken.

Benefit is often derived from rubbing the throat externally with olive oil, Chatteris Oil, or amber oil.

If at the expiration of six months' treatment the tonsils are seriously enlarged and interfere with the child's comfort, the question of removing them will have to be considered. It is not a pleasant operation, but thanks to the discovery of cocaine, it is much less painful than formerly.

TUBERCULOSIS.—The tendency to this constitutional disease must be looked upon as the weakness, *par excellence*, of the whole of the inhabitants of Northern Europe. It is the form of constitution in which we find *phthisis*, or consumption of the lungs, occurring; in which children are liable to be attacked with inflammation of the membranes of their brains; and in which, if the disease fly to the glands of the abdomen, we get marasmus or wasting from mesenteric disease. It is distinctly hereditary, and we find the disease "cropping up" in its various forms in the different generations of a family, and among the different members of the same generation. Thus, when we hear of two or three members of a family dying of consumption, we shall very often, on inquiry, learn that others have died in infancy of diarrhœa (which may have been due to tubercles in the intestines), or marasmus, or atrophy (tubercle of mesenteric glands), or symptoms referable to the brain (tubercle of the membranes of the brain). There is no fact more clearly established than that tuberculosis is hereditary; a fact which has been proved with regard to the lower animals as well as man. Those, therefore, who, having shown symptoms of this disease, persist in marrying, do so at the risk of having children who may inherit from them disease instead of health.

With regard to the causes which seem to help in the production of tuberculosis, certainly in those who are, and probably also in those who are not, predisposed to it by inheritance, we may mention, first, overcrowding, for certainly this disease is most common among those who work in crowded, ill-ventilated workshops, and who sleep in overcrowded apartments—as is too often the case among the poor.

Secondly, we may mention that a damp, ill-drained soil seems to predispose to tuberculosis, or at least to that form of it which attacks the lungs; for Sir George Buchanan, one of the medical inspectors of the Local Government Board, has clearly shown that since the effectual

draining of certain towns, the number of deaths from phthisis in them has materially decreased.

Thirdly, we may mention as a probable source of tuberculosis any irritation which may persist in the body of an individual. Thus, if bronchitis, or what only seems to be a common cold, be allowed to go on unchecked, the glands of the chest become irritated and inflamed, and when this is the case, the risk of general tuberculosis being set up from these infecting centres seems to be very much increased. Irritations of all kinds are apt to cause glandular enlargements, and a glandular enlargement once set up (in the lungs, bowels, or elsewhere) in a person predisposed to tuberculosis, the risk of that predisposition being confirmed is very greatly increased. This mention of glandular enlargements must not lead the reader to confound the tuberculous with the scrofulous constitution. The two conditions differ widely, as he will see if he turns to the article on scrofula.

Tuberculosis is characterised by the presence of "tubercles" in the body, and to the uninitiated it is no easy matter to convey a notion as to what tubercles are. They are little white particles, insignificant in size and appearance; but wherever they are inflammation is apt to occur, and it is this tendency to chronic inflammation in tissues which are the seat of tubercles which constitutes the danger of the condition. The most common positions for tubercles are (as we have said) the intestines and their glands, the lungs, and the brain.

Children who are prone to tuberculosis are generally pretty. They are slim, fair-haired, with lithe, active figures, delicately-formed limbs, slender chests and waists, blue eyes and clear red and white complexions. They are the novelists' favourite little heroes and heroines, who appear like fairies to gladden the hearts of parents and friends for a short season. They are intelligent, quick, and volatile, and are a source of pride to their mothers and nurses.

The onset of tuberculosis may be sudden or gradual. When sudden, it very closely resembles an attack of fever. The child is probably convalescent after one of the diseases of childhood—measles, whooping cough, chicken-pox, or scarlet fever—when its convalescence seems arrested. It becomes languid, irritable, peevish, dull, and heavy. It neglects its playthings, and its appetite fails. Then it becomes feverish, has a dry skin, and complains of thirst. The cheeks are flushed, or are alternately flushed and pale. The eyes are bright and glistening, the pulse is quick, and the temperature (as measured by a thermometer) rises considerably. The lips are dry, and the edges of the nostrils also are inflamed, and the child picks

them and makes them sore. The loss of flesh is rapid—rapid in proportion to the rise of temperature; and, in fact, the state of fever and the increasing wasting are often the main features of the condition. The child may die, worn out by its persistent febrile condition, but this is rarely the case, and usually the disease terminates by determining, as it were, to one or other of the organs which are prone to be attacked.

If the lungs are attacked, the child coughs, and sometimes coughs up a little blood, which is always a serious symptom. Sometimes it coughs up a little matter from the lungs, but this is not often the case, and it should be borne in mind that children may have, and often do have, very serious disease of their lungs without coughing up anything at all. One may often hear the rattling and wheezing within the chest, and sometimes the wheezing may be felt when the child is taken in the arms, but the certain determination of the amount and character of the disease in the lungs is only to be made by a practised ear, aided by a stethoscope. This condition of the lungs is exactly comparable to “consumption” in the adult, and is usually tolerably rapid in its course.

If the bowels are the parts mainly attacked, we have, in addition to the symptoms attributable to the constitutional state, special symptoms referable to the intestines, the liver, the mesenteric glands, and other organs of the abdomen, as the kidneys and spleen. When tubercular disease attacks the lining coat of the bowels, it causes extensive ulceration of them, and round the ulcerations the bowel gets inflamed. As a result of this the child complains of pain, usually little twistings and gripings, which elicit slight expressions of pain, and are then forgotten. The condition of the bowels is variable, but usually diarrhœa is a marked symptom, and sometimes this diarrhœa is so profuse as to rapidly exhaust the patient. These cases of tuberculosis accompanied by diarrhœa are often mistaken for typhoid fever; and, indeed, the two diseases are often so alike that even the most practised eye is unable to distinguish them. Alternating with the diarrhœa we get periods of constipation occasionally. The motions are usually of a pale yellow colour, and offensive, and contain sometimes a little blood. The abdomen of the child may be normal in appearance, and not the least tender; but if the ulceration should cause, as it occasionally does, general inflammation of the cavity of the abdomen (*peritonitis*), the symptoms are very different. The abdomen becomes tender to the touch, and is usually blown up with wind. The peritonitis in these cases, however, runs a gradual and not a rapid course as a rule.

If the kidneys are attacked, which is by no means uncommon, we

get a little tenderness in one or both loins. The child complains of pain, and the urine is occasionally, when passed, thick with the matter which has been discharged by the damaged organs.

When the disease attacks the head we are confronted with one of the most terrible of the diseases to which children are liable, and which is known technically as *tubercular meningitis*—known also as acute hydrocephalus, but to be carefully distinguished from chronic hydrocephalus, or water on the brain. Before describing the symptoms of this disease, we would remind the reader that it often happens that the local disease in tuberculosis precedes the general condition, and the symptoms of the one are frequently the cause of our distinguishing the other. Thus the symptoms of tubercular meningitis may make their appearance in a healthy child, as may also the symptoms of tuberculous disease of the lungs or bowels. The child complains of its head. It stops suddenly, perhaps in its play, cries out, "Oh, my head!" and then resumes its game. Any child complaining of its head should be carefully watched, and should have the advantage of medical supervision for a time. The headache varies in severity from a trifling pain to agony. The child avoids the light, and prefers the blinds down, and turns its head from a glass. The face is alternately flushed and pale, and if the fontanel (the opening between the bones on the crown of the head) be open, it will be found to be prominent and not depressed. The appetite fails, the bowels are usually confined, and the child is troubled by persistent vomiting. This is a very characteristic symptom, and whenever a child vomits persistently, and without adequate cause referable to the stomach, one should always suspect that it may be the premonitory symptom of tubercular meningitis. The surface of the abdomen is flat and pinched in. The pulse is rapid at first, but when the child gets drowsy and dull it usually becomes slow. After the child has been ill a week or ten days, and sometimes earlier, the head symptoms are more marked. There may be attacks of convulsions, and occasionally the child has a habit of sighing deeply. Then wandering comes on, and drowsiness makes its appearance, and gradually deepens into coma. The child may squint, or one eyelid may droop, or one or both pupils may become enormously dilated. Sometimes there is paralysis of one side of the body. Death occurs in these cases either from the general weakness, or in a fit of convulsions, or by a deepening of the insensibility.

The duration of this disease varies a good deal, and this seems to depend on whether or not it appears at the beginning or the close of a general attack of tuberculosis. It rarely lasts more than six weeks or a

couple of months, and is sometimes fatal within a week of the first appearance of the symptoms.

We have purposely included in our description of the general disease known as tuberculosis a detailed enumeration of the symptoms of the chief local manifestations, because by so doing we are able to give a better general idea of what is meant by a "constitutional tendency," and of the consequences which may result therefrom. This method of treating the subject, too, has this advantage, that the remarks which we purpose making on treatment will appear more coherent and more rational than would otherwise be the case.

In discussing the treatment of tuberculosis, then, it will be necessary to bear in mind its causes and its consequences, and it will be found that the former may not infrequently be prevented, and the latter averted.

First and foremost, then, we would impress upon our readers that tubercular people before marriage should be made well aware of the possible consequences of the step. They should take the best advice before doing so, and, although the blindness of love is a fact which nobody can doubt, they should be advised not to select as their partners for life those who are prone to the same constitutional conditions as themselves.

If a child have the tubercular appearance, and come of a tubercular stock, we may still do much to ward off that which threatens it, and if the remarks we have made about overcrowding and damp soils be borne in mind, and if the circumstances of the parents are such as to allow of a choice in such matters, they will be particularly careful not to allow it to run the risk of sleeping in a close bedroom, of working in an overcrowded school-room, or of living in a damp, cold situation.

These children require more than ordinary care during and after their children's diseases, for these periods, which are trying to all children, are often fatal to the tubercular.

As long as a child who inherits tuberculosis be kept in perfect health, it may escape its inheritance, but if, through want of proper supervision, its health fails, it is at once laid open to the attacks of its acknowledged enemy, and if any organ become diseased it may prove the centre and starting-point of the constitutional disorder.

Any irritation or undue excitement of any part may determine the tuberculous change in that part. Many a child has had its tubercular meningitis started by the carelessness of its nurse, who has neglected to properly protect the child from the heat of the sun. And, again, we

believe that the eternal worrying of children by some unwise parents brings about the same result. The tuberculous children are generally forward, and they begin to take notice and to prattle earlier than others. This being the case, their brains are never allowed a moment's peace, and incessantly during its waking hours it is made to "take notice" of this, that, and the other, to answer stupid questions, and repeat stupid rhymes. All this to so young a child is mental labour, and this mental labour often, we believe, is answerable for the induction of tubercular disease of the brain, and the premature death of the child.

Again, undue exposure to cold or insufficient clothing may bring on bronchitis, and bronchitis in these constitutions will almost certainly determine tubercular disease of the lungs. Children are often insufficiently clothed, and when they begin to run about their dresses not infrequently begin so low down and end so high up that the chest and legs are left practically bare. We grant that children thus dressed look uncommonly pretty, and we are ready to admit that this costume is adopted by parents very often from a mistaken notion about "hardening their constitutions"; but we fear there is good reason to suppose that this hardening process often ends in death. These children should be very carefully clothed, and their legs, arms, and chests should be kept carefully covered up, except during the summer months. If the parents can afford it, it is advisable for them to pass the winter in a warmer and more certain climate than is to be found in England, except in some favoured localities.

The skin should be kept scrupulously clean, and should be washed daily with soap and water.

The tendency to disease of the bowels should make one very careful about the diet of such children. It should be carefully adapted to their age, and should be bland and unirritating. Any unwholesome particle may lodge in the bowels, set up irritation, and cause a tubercular deposit. Uncooked vegetables, underdone potatoes, a piece of gristle, the outside white skin of the orange, or the stones of a grape or raisin, may be sufficient to induce the trouble. Milk, soups, carefully boiled or roast meat, wheaten bread (not oatmeal or brown bread), carefully and thoroughly cooked vegetables, soft puddings of custard, rice, tapioca, or other farinaceous articles, and cooked fruit, ought to constitute the diet of such children.

The actions of the bowels must be carefully looked to, and constipation or relaxation must receive immediate attention. An occasional rhubarb and soda tabloid, or a small dose of Hashra Tea is perfectly safe. The

bowels may often be relieved by giving a simple injection of soap and water by the bowels, but this is a measure which ought only to be used occasionally, and ought never to be allowed to become a practice. Half a drachm of phosphate of soda in a little broth or hot milk is a very efficient purgative, and, being tasteless, is of great service in the nursery.

Certain medicines are of undoubted service in tuberculosis, and first among these we must mention that which is so useful in all conditions of disordered nutrition in childhood—cod-liver oil. If this be given during convalescence from the infantile fevers, benefit almost always accrues to the patient, and the manner in which children grow, make flesh, and improve in appearance generally, is one of the most remarkable facts which the physician is ever called upon to observe. If the patient be pale and bloodless, steel wine or some other preparation of iron may be given in conjunction with the oil or separately. If oil cannot be taken, cream is sometimes given, and is indeed a very pleasant substitute, but its medicinal properties are inferior to those of the oil. Kepler Extract with hypophosphites is an excellent preparation. Small doses of arsenic are undoubtedly useful, especially if combined with iron as in the mild (blue label) Levico Water. Ten drops of the Levico in wine, milk, or water three times a day will be enough to begin with.

A difficulty is often experienced in getting children to eat fat, and, as a rule, they carefully cut off and put at the side of their plates every particle of fat that is given them. It is no good correcting children for this, and the ability to appreciate and digest big pieces of fat will not be engendered by talking. Fatty things are undoubtedly good for children, but fat is better given them in a state of fine division. New milk contains an abundance of fat, and for this reason, as well as for its other high dietetic values, milk should form a large part of the nursery dietary. Some forms of condensed milk are quite equal to fresh milk, and afford an agreeable change. Bread and milk for breakfast, and milk puddings of all kinds, are appreciated by all children. Bread and butter is, of course, the staple food of children from two years old and upwards, and in this form they get a large amount of fat. Eggs, too, contain fat, and there is seldom any difficulty in getting them to eat eggs. Never let a child be wasteful with its food, nor allow it to be foolishly capricious; but, on the other hand, children should not be bullied to eat that which they do not like. If they do not like fat in its grosser forms, give the more delicate varieties.

Benefit is often derived from systematically rubbing olive oil into the chest night and morning.

So long as wholesome flour and cow's milk are obtainable, do not give any of the innumerable patent foods which are so freely advertised, and which are sold in the form of powder in hermetically-sealed tins. The labels of these tins are often covered with the analyses of eminent chemists and the testimonials of more or less eminent doctors, and possibly some of these patent articles may be good substitutes for the unwholesome trash which is often given to the children of the poor; but it must stand to reason that their dietetic value cannot excel, and probably falls far short of, a mixture of wheaten bread and new milk. If the appetite fails, much good may often be done by giving a very small quantity (half a grain or a grain) of quinine dissolved in one drop of dilute sulphuric acid, and mixed with a little infusion of orange peel, about half an hour or twenty minutes before dinner.

When the more acute symptoms appear, the treatment of the case necessarily passes out of the hands of the friends into those of the doctor, so that we shall not say much on that point. For diarrhoea, it is best to give an occasional tabloid of bismuth and bicarbonate of soda. Laudanum or opium in any form should not be given to children without medical advice. The treatment of the lung condition does not call for any very particular remarks, and we must refer the reader to the article on consumption for information on this point. The treatment of the head symptoms can hardly be discussed here. Comparatively few cases of recovery from tubercular meningitis are on record, and these have been effected by the employment of measures which necessitate the supervision of a medical man.

ULCERATION OF THE GUMS.—This, amongst the poor and ill-fed, is a common and often very troublesome condition. It occurs generally just after the child has cut its first teeth, and is characterised by a foetid ulcerating condition of the gums, which usually begins behind the front teeth, but soon spreads to the front. The gums are red and swollen, and the margins next the teeth are sore, and covered with a buff-coloured, pasty, sticky matter, which adheres to the surface of the sores, and usually smells most offensive. This condition may be limited, or it may spread till it affects the whole of the gums, and may be so deep as well as so extensive as to cause loosening of the teeth. In extreme cases, the child is in a pitiable state, and runs no small risk of being poisoned by the constant inhalation of the foetid exhalations from its own gums, and the absorption of putrid matter. The disease is caused

by bad hygienic conditions, and is usually attributable to foul air and injudicious feeding.

The treatment consists chiefly in a most scrupulous attention to cleanliness. The mouth must be constantly washed out with water to which some disinfecting fluid has been added, sufficient being used to give a purple tinge to the water.

Always after taking food the mouth must be washed out, and all offensive matter removed with a camel's-hair brush. For a local application to the gums there is perhaps nothing better than a solution of chlorate of potash and borax, made by dissolving one or two tabloids of chlorate of potash and borax in a wineglass of water. Glycerine of tannin is also a valuable remedy in these cases. The child must be carefully and constantly fed with milk and strong broths, and it is generally necessary to give some stimulant, the best for the purpose being beef and iron wine. The state of the bowels must be regulated by the occasional administration of a tabloid of rhubarb and bicarbonate of soda. The internal administration of quinine in doses varying from half a grain to a grain, according to age, is strongly recommended.

ULCERATION OF THE MOUTH.—This is exceedingly common in children who are in a weak state of health, who are injudiciously fed, or who are not kept clean. The most common form of ulceration consists of small circular abrasions, situated generally on the inside of the lips, or the cheek, or the side of the tongue. They are called *aphthous ulcers*.

They are not usually difficult to cure. The first indication is to keep the child's mouth perfectly clean; and the mouth should be washed out whenever it is fed. The best thing to apply to the ulcers is glycerine of borax, or glycerine of tannic acid, which should be applied with a camel's-hair brush. Another favourite and valuable application is chlorate of potash, a strong solution of which, made by dissolving two or three of the tabloids in a wineglass of water, may be used to wash the mouth three or four times a day, and especially after every meal. Borax and honey is also an old and useful application, but inferior probably to the preparation made with glycerine. The child's general health wants attending to, and it is often advisable to give a brisk purgative of a tabloid of rhubarb and soda, or of grey powder. The diet should be as simple as possible. If any of the ulcers show a reluctance to heal, it may be advisable to touch them with a stick of lunar caustic.

WATER ON THE BRAIN—CHRONIC HYDROCEPHALUS.—This is happily a comparatively rare disease. It consists of a dropsy of the brain—a collection of water within the cavity of the skull.

The disease begins to make its appearance about the sixth month of life, just when the child begins to cut its first teeth. As the water collects inside the head, the bones of the skull, being soft and not yet united together, yield to the pressure from within, and grow thin and separate from each other, so that the head becomes enormously large, the natural openings between the bones are much bigger than ordinary, and the bones themselves are sometimes so attenuated as to allow of the detection of the fluid beneath them. The head is sometimes nearly as big as the whole of the rest of the child's body, and these unfortunate children are the "big-headed monsters" who are shown as curiosities at country fairs. Although the head grows big, the face remains of a natural size, and this disproportion between the size of the head and face gives the child a very extraordinary appearance. The forehead overhangs the eyes, and the eyes themselves have a peculiar appearance owing to the lower half of the "whites" being completely obscured. The veins of the head are usually large, and if the child is able to walk about, it gets a peculiar oscillating gait, owing to the great size and weight of its head. The disease often occurs in the tubercular and the rickety. The appetite is usually fairly good; but in spite of this the child loses flesh steadily. The duration of such cases, which are generally fatal, is from one to three years, but now and again they live on into adult life.

Great care must be taken to distinguish this condition from the large head of rickets, which is not by any means so serious a condition. In rickets we find the other signs of the constitutional state in other parts of the child's body, and although the fontanels are late in closing in rickets, they do not remain so widely open as in chronic hydrocephalus. A further distinction is found in the fact that the bones in rickets are rather thicker than ordinary. The peculiarity of the eyes seen in hydrocephalus is not present in rickets.

The treatment of these cases does not usually afford much ground for hope. The general health of the child must be carefully attended to. Tonic and alterative medicines may be given, and its general hygienic arrangements must be carefully supervised. Iodine, in the form of syrup of iodide of iron or extract of malt with iodide of iron, is highly recommended. The head may be blistered with advantage, and the administration of diuretic medicines, such as carbonate of potash, acetate of potash, and infusion of broom, has been supposed to assist in

the reduction of the fluid. In some constitutional states the administration of tabloids of grey powder might be advisable.

The head may be tapped, and many cases have been published which show the advantage of this form of treatment. The tapping is best done by means of an instrument called an aspirator, and as the fluid is drawn off the head should be slightly compressed by means of a bandage. These are, of course, measures which can only be done by persons thoroughly conversant with disease; and, indeed, the treatment generally of this very grave disorder must be left entirely in the hands of professional advisers.

WHOOPIING COUGH.—This disease owes its name to the loud whooping, crowing sound with which the sufferer draws breath after a violent attack of coughing. The whoop is a very variable symptom of the disease. It may be very loud, and constitute the principal feature, or, it may be absent altogether.

Whooping cough seems to be more infectious even than measles, and, as mentioned while discussing the last-named disease, it is often established during its continuance or the subsequent convalescence. It should be borne in mind that whooping cough is a general disease—a disease, that is, affecting the whole body, and although the symptoms are mainly referable to the lungs and windpipe, the disease is by no means limited to those parts. The disease is most common in childhood, but is not confined to that period of life. The phenomenon of an old person suffering from whooping cough is far from uncommon.

The attack begins generally as a common cough—an ordinary attack of bronchitis. The child has attacks of coughing, and wheezing can not infrequently be both heard and felt in its chest. After this ordinary cough has lasted ten days or a fortnight, it becomes violently spasmodic in character, and the well-known sound is developed. To see a child during a severe paroxysm of whooping cough is a truly piteous sight. It is probably playing with its fellows, and enjoying its game as much as the others, when suddenly it is conscious of the approaching trouble. It ceases to play, stands still, and catches hold of the nearest object for support. The cough is loud, severe, and repeated five or six times, and then comes the prolonged whooping inspiration, followed by a fresh series of coughs and a fresh whoop. This is repeated again and again until the child becomes blue in the face, and gasps for breath. The eyes look bloodshot, and stream with tears. Sticky tenacious mucus

is coughed through the mouth and nose, and not infrequently the straining efforts at coughing are so severe that the contents of the bowels and bladder are discharged. It is very common for an attack of coughing to terminate with vomiting, and whenever a child vomits with a cough, the nurse should suspect that it is suffering from whooping cough. With the vomiting the cough ends, the complexion becomes natural, and in a few minutes the child is again playing, quite forgetful of the trial it has passed through.

These attacks of coughing recur at uncertain intervals, which vary with different individuals. In bad cases, or when the attack is at its height, they may come as frequently as one in half an hour, and as the patient gets better the attacks become not only less severe but less frequent also. The attacks of coughing are brought on by anything which irritates the child, and if ever it be allowable to spoil a child the period of its whooping cough is one of those times. Any sudden rebuke, or rapid and sudden movement, will to a certainty induce an attack, and occasionally even the slight irritation caused by taking food is sufficient to produce them.

The disease is one of very uncertain duration, and often proves very trying to the friends by its obstinate persistence, for as long as any member of a family has whooping cough, the whole of the household is placed in quarantine by its social circle. In favourable cases the disease completely subsides in about three weeks; but it is no unusual thing for it to persist for twice as many months. It is commonly supposed, and with reason, that the whooping noise occasionally lasts long after the infectious period of the disease has passed away, and that consequently many a child with pronounced whooping inspiration might with perfect safety mix with its fellows at school and elsewhere. It is impossible, however, in our present state of knowledge to say where the infectious period of the disease ends and the non-infectious begins, so that it is better to be on the safe side, and to keep a child entirely separated until it has absolutely ceased to whoop. Any child who is whooping would certainly get the credit of spreading the disease should any children with which it had come in contact succumb to whooping cough.

Whooping cough must at all times be looked upon as a serious disease, and the slightest attacks must be a source of some uneasiness to the friends of children. It is a more common cause of infant mortality than is generally supposed; but when it is fatal, it is so usually by the complications which are apt to be established during its

continuance. Thus, the bronchitis, which is always present to a certain extent, may become unduly severe, and may attack the fine tubes of the lung, in which case the gasping for breath becomes a marked feature, the respiration is hurried, the cough frequent, and the countenance livid, according to the amount of suffocation which is present. True inflammation of the lung may be set up, and when this is the case the characteristic features of whooping cough subside until the inflammatory attack has passed off. Bleeding from the lungs or nose will sometimes occur, and prove very weakening to the patient.

Convulsions are a serious complication, and are very frequently fatal. The lungs, from the incessant cough, may drift into the condition which is technically known as *emphysema*—i.e., they become over-blown, a state analogous to “broken wind” in the horse. In this case the child remains short-breathed and asthmatic, and this condition once established is very liable to be permanent. *Tubercular disease* is very often established during whooping cough, and the patient may become consumptive or suffer from tubercle of the brain, and die with symptoms of hydrocephalus, or drift into the condition which is known as marasmus or atrophy.

The treatment of whooping cough varies according to the stage of the disease. These stages may be considered as three in number—(1) the febrile stage, in which cough and cold are the ordinary symptoms; (2) the paroxysmal stage, in which the patient is tormented with cough and spasm; and (3) the nervous stage, in which the other symptoms having passed away the whoop alone remains.

During the first stage it is necessary to carefully regulate the diet and clothing of the invalid, and to guard him as much as possible from the effects of cold. Perspiration should be encouraged at night by the administration of warm drinks, and the chest should be wrapped in flannel or cotton wool and covered with oiled silk. If the bronchitic symptoms be severe, some spirits of camphor or spirit of turpentine may be previously sprinkled upon the wool or flannel. It is necessary to regulate the action of the bowels, and it is usually advisable to restrict the patient to a slop diet if the amount of the febrile symptoms be considerable. The next thing necessary is to encourage expectoration. If old enough, patients should be told to expectorate, and not to swallow the secretion which is coughed from the lungs, and medicines should be given in order to loosen the phlegm. The best of these, perhaps, are ipecacuanha, squills, syrup of tolu, and ammonia, and these drugs may be administered singly or combined. The tabloids of ipecacuanha and tartarated

antimony are very useful. Sometimes when the lungs are much choked with secretion, great advantage is derived from the administration of an emetic, such as warm mustard and water, but these are points which can only be decided by the practised judgment of a medical man.

When the febrile stage has passed, we may try to allay the spasm and paroxysmal cough, and here we think we may well give a word of warning as to the danger of having recourse to patent quieting medicines of whose composition we are ignorant. Nearly all of these preparations contain laudanum or opium in some form or another, and we have no hesitation in saying that opium has been the cause of some thousands of deaths when administered ignorantly and thoughtlessly for the relief of the severe troubles of whooping cough. Children are at all times peculiarly susceptible to the influence of narcotic medicines, and they are particularly so when their breathing power is impaired by disease of the lungs. A child who is under the influence of opium, even though its lung-tubes be filled with secretion, has its sensibility so dulled that it "forgets" to cough, and to forget to cough in such a plight is to die. The child who is incessantly coughing becomes quiet, and the conclusion drawn is that it is better, whereas, as a matter of fact, it is being slowly suffocated by the secretion in its lungs. Soothing medicines, and especially opium, should never be given without authoritative advice; indeed, there are few conditions in which it is warrantable to give opium to very young children.

There are, however, many drugs which are undoubtedly useful in the treatment of whooping cough. First and foremost we should place belladonna—a drug which is always taken by children without the slightest difficulty. It is best given in the form of the tabloids, which contain one minim of the tincture in each. This is a very small dose, but it is convenient to deal with small doses, as the amount can be regulated to a nicety. One tabloid may be given every half-hour for four hours, and this may be repeated twice or even three times in the twenty-four hours. Another excellent remedy is bromide of sodium, one or two five-grain tabloids (T. 19) dissolved in a little sweetened water, being given three times a day. In very obstinate cases the belladonna and bromide of sodium may be given concurrently. Many doctors prefer the tabloids of bromide of strontium to the sodium salt.

In the third stage, tonic medicines, combined with anti-spasmodics, are of great service, and it should be borne in mind that a good supply of wholesome and digestible food and an abundance of fresh air are the best of all tonic medicines. If the circumstances of the child allow of a

supply of both of these, recovery is usually rapid. We do not mean to say, however, that drugs are not of very great service, and if the child be pale and weak, and has lost flesh during its illness, a teaspoonful of cod-liver oil, or of extract of malt with iodide of iron, will be found a most excellent means of restoring the vigour which has been lost. The nervine tonics are also of great service, and first among these we should place quinine, which may be given in doses of a grain or less. If the whooping noise persist obstinately, belladonna combined with sulphate of zinc is perhaps the most generally approved remedy. The dose of each of these should be small to begin with, but after a few days may be increased. Sulphate of zinc is an emetic, and if any injudicious attempt be made to give large doses from the first, the object will be defeated by the vomiting of the patient, but by gradually increasing the dose the recipient can ultimately be made to tolerate enormous quantities. The same remark applies to belladonna, but by gradually increasing the dose we are enabled to give it in quantities sufficient to arrest the spasm of the windpipe. It should be remembered, however, that zinc and belladonna are both poisonous drugs, and when they are administered it would be well to keep the patient under the supervision of one who is well accustomed to the observation of disease. If the child be still much disturbed at night by the cough, a dose of bromide of strontium or bromide of potassium (two five-grain tabloids of either) may be given at bedtime. Nitric acid is a remedy which has been regarded with favour, and from two to ten minims of the dilute acid given with a little syrup of orange-peel is often useful; and it has this advantage over some other medicines, that the child does not object to it, and swallows it without difficulty. In very chronic cases much benefit is derived from the administration of the *Drosera rotundifolia*. A teaspoonful of the tincture is added to a tumblerful of cold water, and of this the child is given a teaspoonful every hour, or as often as may be found convenient. It usually reduces the paroxysms of cough in a few days.

Applications to the spine undoubtedly do much good in chronic and obstinate cases. Chatteris oil in teaspoonful doses rubbed into the back before the fire night and morning will be found useful.

The liability of a child recovering from whooping cough to fall into bad states of health, and to fall a victim to tuberculosis or scrofula, must be always borne in mind, and the greatest care must be exercised in the general hygienic arrangements of the convalescent. A short sojourn at the seaside, at the southern coast of England in winter or early spring, or the English eastern coast in summer, is strongly to be

recommended. For children living in cities, the mere removal for a time to any healthy country district is often sufficient to re-establish the health.

WORMS.—Children are mainly affected by two varieties of intestinal worms. These are known as thread worms and round worms. Much difference of opinion exists amongst medical men as to the importance which should be attached to the presence of worms in children. Many consider that they are of very little importance and do no harm, but the more generally received opinion is that they are the cause of a very great deal of mischief. Children suffering from the presence of these parasites are generally anæmic, fretful, restless, and easily tired. They suffer from diarrhœa, and often exhibit a peculiar form of irritation about the mouth and nose. It is probable that the ova are introduced by some article of food or drink, and we naturally suspect either the milk or the water. In many cases, however, there is very little doubt that the use of brown sugar is responsible for the mischief. It is of great importance to see that the food is absolutely clean. The milk should be peptonised, the water should be filtered, and in place of brown sugar, either white sugar or saccharine tabloids should be employed. The child's nails should be cut short and the body and garments kept scrupulously clean.

Thread worms, of which the scientific name is *ascaris vermicularis*, and which are commonly spoken of as ascarides, inhabit the lowest part of the bowel, and live just within the lower orifice or anus, and indeed crawl in and out. They resemble pieces of white thread, hence their name. They are innumerable in quantity, and are about a quarter of an inch in length. They cause an intolerable itching, and often provoke painful contractions of the bowel (*tenesmus*). The bowel generally gets into a semi-inflamed condition, and slimy mucus is often discharged from it. The irritation may set up that most troublesome condition known as falling down of the bowel (*prolapsus ani*). The irritation in the rectum is occasionally the cause of fits, and it often sets up a sympathetic irritation in the genito-urinary organs which is very undesirable. It must be borne in mind that a healthy child hardly ever has thread worms, but a sickly child is hardly ever without them. They are always an indication of ill-health, and the ill-health is the cause of the worms.

Injudicious feeding often occasions irritation of the rectum and the secretion of mucus, in which mucus the worms live and flourish. Look first of all, therefore, to the child's diet, and correct whatever is amiss, and take particular care that the child has no access to sweets or trash. It

may be necessary to give a mild purgative, such as a tabloid of rhubarb and soda.

Next we may treat the worms locally, and the best method is usually by throwing injections into the bowel. Several injections have been recommended. Salt and water is very effectual. So also is infusion of quassia. Half a drachm of the tincture of perchloride of iron in four ounces of rose water or lime water is very valuable also. The injection should not be too large, and it is not necessary to inject it with great force, as the worms inhabit the lower part of the bowel. The injections act, no doubt, in a large degree mechanically, and it is quite sufficient in most cases merely to keep the bowel clean.

The most important part of the treatment is the constitutional treatment. The child in these cases almost invariably needs tonics. Cod-liver oil and iron, or a dose of Kepler Extract after meals, must be given in almost every case. These measures are usually successful, and it is not necessary as a rule to have recourse to those drugs which are recognised as worm medicines. If it be requisite, however, the best of these is santonin, which should be given at bedtime in doses varying from two to six grains, according to the age of the child. This should be followed in the morning by a mild purgative.

The round worm is technically known as the *ascaris lumbricoïdes*, and it is usually spoken of as the lumbricus. They usually inhabit the small intestine, but may be found in any part of the intestinal canal between the stomach and the anus. They closely resemble the ordinary earth worm, and vary in length from two to sixteen inches. The child may void them by vomiting, but they are usually passed from the bowel. The worm being a creature of some considerable size, the symptoms which they cause are often serious. They occasion griping pains in the abdomen, with itching about the anus and nose. Occasionally diarrhœa is produced by them, and they are certainly a tolerably frequent cause of epileptic fits, of squinting, and of enlargement or inequality in the size of the pupils of the eyes. They are said to have been the cause of St. Vitus's dance, but this is doubtful. It is certain, however, that in many cases they occasion no symptoms at all, and the first indication of their presence is the finding them in the evacuations from the bowels. Again, the various symptoms which are said to be due to the presence of round worms very frequently exist without any evidence whatever of the presence of worms. The treatment of round worms consists first in the improvement of the general health by attention to diet and the administration of tonics, and secondly, in the giving a dose of santonin at bedtime, followed by a brisk purgative in the morning

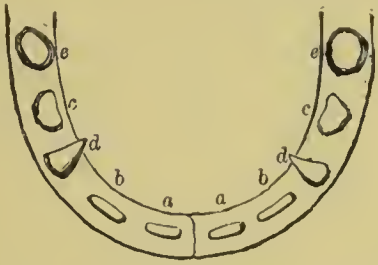
IV.—THE DERANGEMENTS OF TEETHING.

THE cutting of the teeth is a natural process, and we have no right to class it among the diseases of childhood, but, nevertheless, the period of active development of the “first set” is a critical one for the child. Many an infant is healthy and sturdy enough up to this point, but when the time of teething arrives nutrition is deranged and there is a marked falling away from the natural standard of progress. Dentition is not in itself a disease, but it indirectly exerts such an influence on the nervous system that it may give rise to far-reaching effects.

It must be remembered that the period of first dentition is coincident with that of active physical change. Every organ of the body is simultaneously undergoing development. The digestive organs, which up to that time have performed their functions very crudely, if not imperfectly, are fitting themselves for a higher sphere of action. The nervous system is becoming consolidated, and, in fact, most of the organs and tissues of the body are in a state of active change. The eruption of the teeth is not an isolated phenomenon, but is part and parcel of the general process of development which is natural to this particular period of life.

The “first set” of teeth, or the milk teeth, as they are more properly called, are twenty in number. The first to appear are the *central incisors*, or the thin cutting teeth, in the middle of the jaws, in the very front of the mouth. These should be cut by the seventh month of life, so that at the end of the seventh month a child should have four teeth—two in each jaw. The *lateral incisors* are the next to appear. These are two in number in each jaw, and immediately adjoin the central incisors. They should be cut by the end of the ninth month, so that a child of nine months old ought to have eight teeth. At the end of the first year the *anterior molars*, or front grinding teeth, ought to have appeared; and at a year and a half the *canines*, or eye-teeth, should be cut. Lastly, by the completion of the second year, the *posterior molars*, or back grinding teeth, make up the full set of twenty milk teeth. The following scheme shows at a glance the order of

cutting, and the number of teeth which a child should possess at different ages:—

	Age.	Teeth cut.	Total No. of Teeth.
	7th month . .	Central incisors (a) .	4
	9th month . .	Lateral incisors (b) .	8
	12th month . .	Anterior molars (c) .	12
	18th month . .	Canine teeth (d) .	16
	24th month . .	Posterior molars (e) .	20

The order of the eruption of the first set of teeth is indicated in months by the numbers

24 12 18 9 7

counting from behind forwards as will be seen from the following scheme:—

MONTHS:	24	12	18	9	7	—	7	9	18	12	24
TEETH:	M ₂	M ₁	C	I ₂	I ₁	—	I ₁	I ₂	C	M ₁	M ₂

At the age of twelve months the child should have cut eight teeth, and the first four molars should be in process of evolution. The teeth are usually cut in pairs, and after the completion of each group there is usually a pause before the next group give an indication of their appearance.

Occasionally we hear of children being born with one or more teeth. These teeth are usually sharp and hook-shaped, and are often loose, or very little more than the crown of the tooth embedded in the gums. It is not at all uncommon for teeth to begin to be cut at the third or fourth month, but in these cases the eruption of one or two teeth is usually followed by a pause, the continuance of the process being deferred until the usual period. Sometimes the whole of the first set is never completed, one or more of them failing to put in an appearance. This is not a matter of any great moment, and need give rise to no anxiety. It by no means follows that because the whole of the first set is not complete, that a similar inequality will be found in the second set.

The time of cutting the teeth is more or less modified or influenced by certain diatheses or constitutional proclivities, which may be either inherited or acquired. For example, children with a tubercular tendency invariably cut their teeth abnormally early. This is a subject on which

mothers are prone to dilate, but it is hardly a subject for congratulation, as although it may be a satisfaction to get the process of teething safely over, it is not altogether a good augury, as it may indicate a lurking tendency to consumption. In rickets the appearance of the teeth is notoriously late, and if there is much delay in the process the child's constitutional condition should be carefully investigated, especially with the view of detecting early indications of rickets, and of guarding against their development in a more pronounced form.

The process of dentition takes place much more easily in some children than in others, and this seems to depend more on individual peculiarity than on the state of the bodily health. It not infrequently happens that children who are distinctly delicate cut their teeth without the slightest difficulty, whilst others who are apparently in most robust health suffer from considerable constitutional disturbance.

When children begin to cut the teeth, the gum swells up and becomes tender, and is painful. This makes the child fretful and peevish, and one that was good before becomes troublesome. This is often the cause of much injudicious feeding, and unwholesome things are given to the baby to keep it quiet, or else it is over-fed, and is allowed its bottle or is nursed whenever it cries. This, we believe, is the cause of many of the troubles of teething, although we do not mean to deny that the period of tooth-cutting is really critical and trying to weak constitutions. It is, and it has been for centuries, the custom to give a child something to suck or bite, with the idea, doubtless, of exercising pressure on the gums, and so helping the tooth through its tough casing. A coral at least helps to keep a child quiet, and it is of use in this way certainly, and possibly in other ways. Rubbing the gums gently with a knob of sugar until a speck of blood appears will sometimes help the tooth to pierce the gum.

Before the teeth are actually cut, a white centre can be seen pressing on the swollen gum, and if this point be evidently very tender, and if the child's condition calls for any interference, it is sometimes advisable to lance the gums: but this is a proceeding which should not be resorted to without good cause.

The process of dentition is often accompanied by more or less feverishness. The amount of elevation of temperature is readily estimated by the thermometer. It is difficult to say exactly what temperature may be caused by teething alone, especially as it is liable to rapid fluctuation, but the thermometer may register 102 degrees for a short period, without there being anything very serious the matter. If it is

over this, a medical man should be consulted with the view of a careful examination of the lungs and other viscera.

The most common complications of the first dentition are stomatitis, or inflammation of the mucous membrane of the mouth, attacks of vomiting and diarrhœa from catarrh of the intestines, spasmodic cough due to irritability of the bronchial tubes, and convulsions dependent on nervous disorders.

The treatment of these conditions is, in the majority of cases, perfectly simple. For the stomatitis, brushing the inside of the mouth with a solution of chlorate of potash in water will usually effect a cure. For the diarrhœa of teething the best is a tabloid of one-third of a grain of grey powder every three hours. For vomiting, the milk should be diluted with one-third of lime water or should be peptonised. For the cough, a one-minim tabloid of tincture of belladonna should be given every hour until relief is obtained. For the convulsions the remedy is bromide of sodium or bromide of strontium, a five-grain tabloid crushed and dissolved in a little water, sweetened with syrup of oranges, being given at bed-time and immediately after each attack. The bowels should be regulated, if confined, by an occasional tabloid of rhubarb and bi-carbonate of soda. The general condition of the health should be maintained as far as possible by small doses of steel wine, or of the Kepler Extract with iodide of iron. If the gums are swollen and painful, the best plan is to rub the affected part with the finger dipped in the juice of a freshly-cut lemon. It induces some little smarting at first, and the child may cry, but this is soon followed by the relief of all pain and discomfort.

About the age of six, children begin to prepare for the second set of teeth by shedding the first, and children of this age are generally noticeable for their ragged mouths. There are twelve more teeth in the second than in the first set, or thirty-two in all. The extra teeth, six in each jaw, are inserted at the sides, so that the form of the arch of the teeth is different in the young child and in the adult, being exactly semi-circular in the first instance, and somewhat like a donkey's shoe in the second. These extra teeth consist of two "bicuspid" on each side, which are inserted between the eye-teeth and the front grinders, and one wisdom tooth on each side, four in all, which are inserted at the extreme end of the dental arch. The permanent teeth are cut in the following order:—The anterior molars at six years, the central permanent incisors at seven years, the lateral incisors at eight years, the anterior bicuspids at nine, and the posterior bicuspids at ten years; the

canine at eleven, and the second molars at twelve years. The wisdom teeth, which are the last to appear, are very uncertain in the time of their appearance, and may come at any time between the seventeenth and twenty-fifth year, or even later. The following scheme shows the times of cutting the permanent teeth :—

Age.	Teeth cut.	Total No. of Teeth.
6 years . . .	Anterior molars . . .	4
7 years . . .	Central incisors . . .	8
8 years . . .	Lateral incisors . . .	12
9 years . . .	Anterior bicuspids . . .	16
10 years . . .	Posterior bicuspids . . .	20
11 years . . .	Canines . . .	24
12 years . . .	Second molars . . .	28
17-25 years . . .	Posterior molars (wisdom) .	32

The second dentition is scarcely so critical a time with children as the first, although certain diseases of the nervous system, such as St. Vitus's Dance and epilepsy, are very apt to declare themselves at this time. In delicate children it is not infrequently accompanied by signs of gastric or intestinal indigestion. The child is very susceptible to changes of temperature, and is liable to colds and catarrh. Medicine is not as a rule needed, but the abdomen should be kept well covered, and all sources of chill carefully guarded against. The food should be light and unstimulating, and starch food, such as potatoes, cakes, biscuits, puddings, and the like, should be reduced to a minimum. When there are indications of acidity, a tabloid of bi-carbonate of soda or a "soda-mint" tabloid will be found the best preventive.

The practice of "lancing the gums" is almost a thing of the past, and is now rarely resorted to except in very unusual circumstances.

V.—VACCINATION.

THE object of vaccinating a child is to protect it from an attack, and especially a severe and fatal attack, of small-pox.

The substance which is inoculated is the material of vaccinia or cow-pox. Cow-pox, which is a natural though not common disease in the cow, never occurs spontaneously in man. It is not catching, and is not communicated to human beings in any other way than by inoculation. Such inoculation, before the time of Jenner, never occurred except by accident, and was a matter of comparative rarity. Jenner discovered that people so inoculated acquired immunity from small-pox, and that cow-pox could be continued indefinitely from individual to individual by inoculation.

Before the date of this great discovery small-pox was the scourge of the land. Almost everyone suffered, and the mortality was fearful. It is estimated that half a million of deaths annually were due to small-pox in Europe alone, and that in London one-fourteenth of the entire deaths were attributable to this cause. Even those who recovered did not escape unscathed, but were, as a rule, disfigured for life. It was a pestilence which smote the wealthy living in palaces equally with the poor in their hovels, and it proved as destructive to Indian tribes encamped on the open prairie as to populations crowded in close cities. The introduction of the practice of vaccination has practically stamped out what was the greatest scourge of the last century.

The great discovery of vaccination was first made publicly known in 1798, and was first practised in London in the following year. Since then the spread of vaccination and the decline of small-pox have gone hand in hand, and the disease which was once the terror of Europe has been practically exterminated.

The Vaccination Act was passed many years ago; its provisions have been practically acquiesced in by the great bulk of English-speaking nations, and have received their cordial and hearty support and co-operation. It has probably done more to prolong human life and to stamp out misery and suffering than any single law that was ever passed.

The present generation cannot be said to have any real acquaintance

with the disease which vaccination protects us against. It is true that now and again we have an epidemic of small-pox, but the epidemics of modern times are nothing when compared with the horrible pestilences of a century ago. When an enemy is in sight, and still more, when he is in our midst, we gladly submit to any amount of taxation in order to be rid of him; but when the enemy retires again we are apt to grumble even at the moderate taxation which serves to support the armaments, the existence of which keeps him at a distance. Vaccination is the tax, as it were, which has enabled us to compel the small-pox to surrender at discretion; and the enemy being driven off, the thoughtless have raised a persistent agitation against the tax.

The rules respecting vaccination are simple. Every child must be vaccinated before it is three months old, either by a public vaccinator or by a private medical practitioner, unless the vaccination be postponed by a medical certificate, in case the child be not in a fit state to be vaccinated.

A medical certificate of postponement of vaccination remains in force for two calendar months only; but if it expire during the interval between periodical attendances for public vaccination, it remains in force until the attendances next after the expiration of the two months.

The Registrar of births is required, within seven days of the birth of a child, to give a notice to the parent, or other person having the custody of the child, requiring the child to be duly vaccinated, and specifying the time when and the place where the public vaccinator of the district will attend for that purpose.

After the vaccination has been performed the child must be inspected by the vaccinator, in order that if the operation have been successful, he may fill up and sign the requisite certificate.

When the vaccination has been performed by a public vaccinator, the child must be taken to him for inspection on the same day in the following week. In the case of vaccination by a private practitioner, the certificate—which is post-paid and addressed—when duly filled up by him, must be transmitted to the vaccination officer by the parents; the penalty for failing to do so is twenty shillings.

Vaccination, free of expense to the applicant, is provided throughout England and Wales under arrangements made by local Boards of Guardians. It usually takes place at fixed periods, which are duly announced by public advertisement, and in the “notice of requirement of vaccination” which the Registrar is bound to give to the parent or person having custody of the child at the registration of the birth.

It will be noted that the penalty for non-vaccination is very small indeed, so trivial as to be hardly worth considering; but it was probably thought that no one would be idiotic enough to refuse to avail himself of the benefits of so great a discovery. The increased risk of suffering from small-pox is a much greater penalty than any pecuniary fine that could be inflicted.

Vaccination is a very simple operation when performed upon healthy children at the age of three months. The lymph employed should be taken from the arm of a perfectly healthy child at some time between the sixth and eighth day of vesication, while the vesicle retains its purity and transparency. The child to be vaccinated should also be in good health. If the patient is feverish, or out of sorts, or has any kind of skin eruption it should be postponed. The left arm is selected, and the surface should be lightly scratched in four or five places with the point of a lancet, or even an ordinary darning-needle. The scratching should be done very lightly (across and across, like the "cross-hatching" of an artist), so as to cause a very, very slight oozing of blood. To these patches the vaccine matter is applied. If fresh lymph cannot be obtained from the arm of another child, vaccine matter in tubes or dried on ivory points may be employed. In using the tubes all that is necessary is to break off the ends, when the lymph flows out quite readily. The dry points are first moistened with water and then rubbed on the scratches made by the instrument. After the lymph has been applied to the arm, care must be taken that it is not removed again by rubbing or washing. If too much blood be drawn, the lymph is apt to be washed away in the stream.

For two days after the performance of vaccination the parts remain quiet. At the end of the second or on the third day a little raised pimple, or papule, appears at each of the spots which have been inoculated.

On the fifth or sixth day the vesicle makes its appearance, and it is perfect by the eighth day, that is, the day week on which the vaccination was performed. The perfect vesicle is a little bluish-white, pearl-coloured bladder, which has a cup-like depression, usually in the centre. The eighth day is the time, before the contents of the vesicle become yellow and mattery, at which points or tubes may be charged for the vaccination of others. After the eighth day the *areola* begins to form round the vesicle. The areola is a red circle of inflammation, and its formation is usually accompanied by swelling of the arm, enlargement and tenderness of the glands in the arm-pit, and occasionally considerable constitutional disturbance. At this time the contents of the

vesicle may become mattery. On the tenth day the areola begins to fade, and the vesicle to dry. At the end of a fortnight a scab forms, which falls off in about another week. The scar left by vaccination endures for ever, and is highly characteristic and unmistakable, and resembles a depression made with the top of a thimble more than anything else.

Vaccination, if properly performed, is a protection against small-pox for the whole of life, probably, but its protective power seems to weaken with the lapse of time, so that it is advisable to repeat the operation at intervals. Every seven years has been mentioned as the period after which it is advisable to repeat the operation, but the number seven has probably more association with superstition than with science.

All persons who have been vaccinated in infancy should as they approach adult life undergo re-vaccination. Generally speaking, the best time of life for re-vaccination is about the time when growth is completing itself (say from fifteen to eighteen years of age), and persons at that particular period of life should not be allowed to delay their re-vaccination till times when there may be a special alarm of small-pox: first, they can never tell how soon or by what chance they may be exposed to infection; and, secondly, because of the much more advantageous conditions under which re-vaccination can be performed when it is done leisurely, than when it has to be done under the pressure which so frequently accompanies a panic. The rule applicable to circumstances of special danger is this: that everyone past childhood on whom re-vaccination has not before been successfully performed should without delay be re-vaccinated.

If any objection is felt to the use of humanised lymph for the purpose of vaccination, calf lymph may be employed. It is only fair to say that calf lymph is a little more difficult to manage than ordinary lymph, and is more liable to cause local irritation. Still many people prefer calf lymph, and their wish should be respected. The custom of vaccinating with calf lymph is steadily growing in public favour, and the Vaccine Department of the Local Government Board affords every facility in its power for the distribution of lymph. When the lymph is not taken direct from the calf it is best preserved on points.

The experience of eighty years of vaccination has served to demonstrate beyond a doubt that when duly and efficiently performed its power of influencing small-pox is almost absolute. It acts not invariably by preventing, but sometimes only by controlling and modifying, the disease. The vast majority of those who have gone regularly through

the vaccine process are saved thereby from any future attack, however slight, of small-pox. In the comparatively small number who have not been rendered by vaccination completely proof against small-pox, the disease, if contracted, is practically deprived of all danger to life, and leaves behind it none of those terrible consequences and disfigurements which follow an attack of the unmodified disease. There is no subject on which medical testimony is more unanimous, or on which the evidence is so conclusive, as the immunity from small-pox conferred by successful vaccination.

There is one fact concerning vaccination which, taken alone, would almost be sufficient to prove the great boon it has been, and the real and undoubted protection that it is. It is this, that at the small-pox hospital it is always the custom to vaccinate the nurses, whether they have been previously vaccinated or not, before they enter upon their duties, and it has resulted from this that *no nurse employed in the small-pox hospital has ever contracted small-pox.*

As affording some indication of the attitude of the medical profession with respect to the value afforded by the performance of vaccination we append a copy of a resolution passed by the Council of the Royal College of Surgeons of England in 1893. It is as follows:—

We, the Council of the Royal College of Surgeons of England, desire to put on record at the present time our opinion of the value of vaccination as a protection against small-pox.

We consider the evidence in favour of its life-saving power to be overwhelming, and we believe, from evidence equally strong, that the dangers incidental to the operation when properly performed are infinitesimal. Experience has satisfied us that, even when vaccination fails to afford complete exemption from small-pox, it so modifies the severity of the disease as not only to greatly reduce its mortality, but to lessen the frequency of blindness, disfigurement, and other grave injuries. We should, therefore, regard as a national calamity any alteration in the law which now makes vaccination compulsory.

We are, moreover, firmly convinced that re-vaccination is an additional safeguard, and should be universally practised.

We would add that we believe that the instructions of the Local Government Board for public vaccinators are well designed to secure the greatest efficiency in vaccination and to avoid the liability to risks from the operation.

As an indication of the importance attached to the protective power of vaccination by practical business men, we may mention that in a report recently issued to the shareholders of one of our largest life assurance societies the chief medical adviser to the Board says:—

It has been observed that during the past year many proposals have been received from persons who have not been vaccinated. At the present time small-pox appears to be on the increase in England, and threatens to assume epidemic proportions. The board have, by my advice, always refused to entertain proposals from such persons. I should require not less than five guineas per cent. in addition to the ordinary premium to cover the extra risk for persons not protected by vaccination at the beginning of an epidemic period, which would be a prohibitive rate, and I am doubtful whether even at that rate the acceptance of such persons would prove profitable to the society.

There is a certain class of people whose sole aim and object in life seems to be to prevent people from availing themselves of the benefits of vaccination. They are called "Anti-vaccinators," and are usually opposed to all measures likely to prove beneficial to the community at large. They usually decline to be vaccinated until there is an outbreak of small-pox, when they hurry off in a panic to the nearest medical man and obtain the desired protection surreptitiously.

The literature for and against vaccination is very extensive, but it is distributed very differently. The "Anti-vaccinators" have special journals of their own in which they air grievances and distort the most elementary physiological facts. They distribute tracts and inflammatory post-cards broadcast, taking care to appeal chiefly to those who are not in a position to detect the fallacy of their arguments, or to correct their data. The literature demonstrating the value of vaccination has been carefully and laboriously accumulated as the result of actual observation, and is to be found mainly in the Registrar-General's annual reports, in articles in the medical papers, and in scientific monographs which are not readily available to the general public. The want of some popular exposition of the subject has long been felt, and has only recently been filled by the publication of a little book by Mr. Ernest Hart, entitled, "The Truth about Vaccination." Mr. Ernest Hart, although a medical man, is not in practice, but has a world-wide reputation as the editor of the *British Medical Journal*, as the Chairman of the Parliamentary Bills Committee of the British Medical Association, and as President of the Council of the National Health Society. His book has had an extensive circulation amongst all classes of the community, and his arguments in favour of vaccination are practically unanswerable. Mr. Ernest Hart says, "It is not easy to discover what are the real objections of the opponents to vaccination, as they are so mixed up with side issues that it is often impossible to make out exactly what is being contended for. With the view, however, of doing what I could in this

direction I have taken upon myself the weary task of reading carefully an entire volume of anti-vaccination tracts, one of many which have been sent to me by the apostles of the cause. For gross misrepresentations, perversions, misquotations, and inaccuracies, and as a medley of utterly wrong and absurd ideas about pathology and physiology, I have never seen their equal!" It is impossible to help agreeing with Mr. Hart that it is very difficult to discover what are the objections to vaccination urged by the opponents of the system. Their arguments are so confused, so illogical, and so puerile, that it is almost impossible to deal with them seriously.

The chief argument of the anti-vaccinationists appears to be that vaccination propagates consumption, syphilis, and almost every other disease. As a matter of fact there is about as much chance of propagating consumption from pure vaccine matter, as there is of growing cabbages from acorns. It must be remembered that vaccine matter is never taken from unhealthy children, and that even if the child from whom the matter is drawn should be suffering from any constitutional complaint this would not be communicated unless the blood of the child were also inoculated, which is never done. No case of syphilis caused by vaccination has ever been discovered by the Medical Department of the State during the twenty years that it has supervised the vaccination of the kingdom. Sir William Jenner, in his evidence given before the Select Committee on Vaccination in 1871, stated that never either in his hospital or private practice had he known of any case of syphilitic infection which he had reason to suppose came from vaccination. Many children suffer from inherited syphilis—the father may not have lived as cleanly as he should have done in his early days before marriage—and when the child is found to be the victim of this disease the parents are only too glad to lay the blame of it on to vaccination. The mother, naturally enough, does not suspect her husband, and he is hardly likely to enlighten her on the subject. As Mr. Ernest Hart says, "When a child is born with the heritage of syphilis (a very frequent incident if its parents have been suffering from that infection), the characteristic symptoms commonly do not appear till some weeks after birth, and then the scandal discloses itself. Now, among persons with any sense of shame, the knowledge that one had transmitted syphilis to one's child would always be a sore subject. There would be strong temptations to employ false pretexts. Not only would parents often conjointly wish to disguise from their medical attendant, or from members of their household, the real explanation of the child's ailment,

but also, not infrequently, one parent would wish to conceal from the other that the origin of the disease had been a conjugal infidelity. Accordingly, it is a matter for surprise that vaccination has not almost generally been pitched upon by persons in search of an apology for their syphilitic children." Every mother may rest assured that in having her child vaccinated she is doing her best to promote his well-being, and is not exposing him to the risk of contracting any constitutional disease.

It is true that children are occasionally ill *after* vaccination, and that just this period—*i.e.*, the first six months of life—is that which is most fatal to children in general, and that in which constitutional maladies are very apt to show themselves. It is also true that the slight disturbance caused by vaccination is occasionally sufficient in delicate subjects to determine the appearance of eruptions on the head or skin, just as a common cold, or any trifling disturbance, would occasion them; but our experience has been that the vast majority of troubles which have been ignorantly alleged by mothers to be caused by vaccination could not by any possibility of means have had any connection with it, although they may have nearly coincided in the matter of time.

The *treatment* of local troubles which may occasionally occur in the arm after vaccination is simple enough. If the arm gets painful and the glands in the arm-pit become tender after the eighth day, the arm should be carried in a sling, and if there be much swelling and redness of the punctures, warm and moist applications will be found to give relief; at the same time the bowels and digestive functions may want attention. Care must be taken that the child does not scratch the punctures, which often itch considerably when they are healing; and equal care must be taken that they are not rubbed or irritated by the dress. It is often a good plan to cover them with a piece of soft rag on which a little lanoline cream has been spread. This may be covered with some soft cotton wool, and the whole retained by means of a bandage. In this way all irritation will be reduced to a minimum, and any risk of the dress sticking to the sores will be obviated. Do not pick off the scabs, but allow them to loosen gradually and fall off by themselves.

Supplies of either humanised or animal lymph are furnished only to medical practitioners on application either personally or by letter to the Vaccine Department of the Local Government Board, Whitehall, London, S.W.

VI.—PRESCRIPTIONS, ETC.

THE following prescriptions have been collected and arranged with much care. They are constantly referred to in the articles on the treatment of disease. Almost everyone of them, if carefully copied out and sent to a chemist, would be dispensed without difficulty. Some of the drugs recommended are not in the British Pharmacopœia, and if the local chemist has none in stock he will send for them to London or some other large centre.

Not only pills and lozenges, but bottles, if securely packed, are now readily sent either by letter post or parcels post. In case of emergency the medicine may be telegraphed for, or the telephone may be called into requisition.

The doses here indicated are, in the majority of cases, for adults.

For children a proportionately smaller dose must be administered according to age. For a child four years old one-fourth the adult dose is indicated, and for a child a year old or under one-twelfth will suffice.

It will be remembered that children are very susceptible to some drugs, such as opium or morphine, whilst others, such as belladonna and grey powder, they take without the slightest difficulty.

Whether the drug should be given before meals or after depends entirely on the nature of the case, but it may be laid down as a general rule—to which there are exceptions—that tonics, such as gentian, calumba, quassia, quinine, and bismuth, should be given before meals; whilst iron, cod-liver oil, and especially pepsine, should be given after meals.

Although the doses of the prescriptions here indicated are those usually employed, it may be necessary in special instances or in certain diseases to depart from the ordinary custom, and when this is the case explicit directions are given in the text.

Whenever possible “tabloids” should be preferred to mixtures, pills, or powders. Tabloids are simply compressed pellets of the pure drug or combination of drugs. There are many advantages in employing them. In the first place the drug is absolutely pure. Then there is no possibility of any mistake with regard to dose. The tabloids are turned

out by the most exquisitely designed machinery, and the tabloids of the same class are absolutely identical in weight, not differing by even a fraction of a grain. They are pleasanter and nicer to take than either pills or mixtures, and children do not regard them as medicine. When the drug possesses any disagreeable taste, however slight, the tabloids are sugar-coated. They keep well for an indefinite period, and in all climates, and do not undergo fermentation, and become unfit for use, as so many mixtures do. They may be carried in a very small compass—in the pocket, if necessary—and a little tube will contain a supply of medicine for many days or even weeks. They may be obtained all over the civilised world, and are cheaper than either mixtures, or pills, or lozenges, or gargles. Sometimes two tabloids of the same name are indicated, but with different doses of the active ingredient.

In the text the sign “Pr.” indicates the prescriptions, whilst “T.” indicates the tabloids. By reference to the number in the list the appropriate prescription or tabloid will be found without difficulty.

In those cases in which tabloids may be conveniently substituted for mixtures or other preparations that fact is indicated in the list, so that a choice is given of two different modes of administration. In the great majority of instances the tabloids are to be preferred.

1.—*Iron Mixture.*

Tincture of perchloride of iron, two drachms.
Chloric ether, one drachm.
Glycerine, one drachm.
Water, to eight ounces.
Mix. Two table-spoonfuls to be taken three times a day.

2.—*Iron and Quassia Mixture.*

Tincture of perchloride of iron, half an ounce.
Chloric ether, forty minims.
Infusion of quassia, to eight ounces.
Mix. Two table-spoonfuls to be taken three times a day.

3.—*Citrate of Iron Mixture.*

Citrate of iron and ammonia, two drachms.
Syrup of orange-peel, half an ounce.
Water, to eight ounces.
Mix. Two table-spoonfuls to be taken three times a day.

4.—*Iodide of Iron Mixture.*

Syrup of iodide of iron, half an ounce.
Syrup of phosphate of iron, two ounces.
Water, to eight ounces.
Mix. Two table-spoonfuls to be taken three times a day.

5.—*Aperient Iron Mixture.*

Sulphate of magnesia, one ounce.
Sulphate of iron, half a drachm.
Dilute sulphuric acid, one and a half drachms.
Peppermint water, to eight ounces.
Mix. Two table-spoonfuls three times a day.

6.—*Saline Iron Mixture.*

Citrate of potash, three drachms.
Tincture of perchloride of iron, three drachms.
Chloric ether, one drachm.
Water, to eight ounces.
Mix. Two table-spoonfuls to be taken three times a day.

7.—*Efferrescing Iron Mixture.*

Citrate of iron and quinine, a drachm.
Sulphate of quinine, eight grains.
Citric acid, eighty grains.
Water, to eight ounces.
Mix. Two table-spoonfuls to be taken every four hours, with one table-spoonful of the following :—

Bicarbonate of soda, eighty grains.
Water, four ounces. Mix.

Iron is contained in the following tabloids :—

- No. 15 “Bland’s Pills.”
- .. 34 Citrate of iron and quinine.
- .. 38 Dialysed iron.
- .. 48 Iron and arsenic.
- .. 65 Reduced iron.
- .. 79 “Tonic.”

Levico water contains both iron and arsenic.

8.—*Iron and Digitalis Mixture.*

Tincture of perchloride of iron, one drachm.
Infusion of digitalis, half an ounce.
Dilute phosphoric acid, one drachm.
Water, to eight ounces.
Mix. Two table-spoonfuls to be taken three times a day.

9.—*Tonic Quinine Mixture.*

Sulphate of quinine, sixteen grains.
Dilute sulphuric acid, half a drachm.
Water, to eight ounces.
Mix. Two table-spoonfuls to be taken three times a day.
This mixture contains the same dose of quinine as tabloid 63.

10.—*Strong Quinine Mixture.*

Sulphate of quinine, forty grains.
Dilute sulphuric acid, half a drachm.
Water, to eight ounces.
Mix. Two table-spoonfuls or more every four hours.
This mixture contains the same dose of quinine as tabloid 64.

11.—*Quinine and Iron Mixture.*

Sulphate of quinine, eight grains.
Sulphate of iron, sixteen grains.
Dilute sulphuric acid, eight minims.
Water, to eight ounces.
Dissolve and mix. Two table-spoonfuls three times a day.

12.—*Salicin Mixture.*

Salicin, two drachms.
Hot water, eight ounces.
Dissolve. When cold, an eighth part to be taken every two hours.
Three of the tabloids 68 are equivalent to one dose of this mixture.

13.—*Ammonia and Bark Mixture.*

Carbonate of ammonia, forty grains.
Liquid extract of bark, one ounce.
Chloric ether, eighty minims.
Syrup of orange-peel, one ounce.
Decoction of bark, to eight ounces.
Mix. Two table-spoonfuls every four hours.

14.—*Gentian and Soda Mixture.*

Bicarbonate of soda, two drachms.
Dilute hydrocyanic acid, sixteen minims.
Compound infusion of gentian, to eight ounces.
Mix. Two table-spoonfuls three times a day.

15.—*Gentian and Acid Mixture.*

Dilute hydrochloric acid, two drachms.
Dilute hydrocyanic acid, sixteen minims.
Compound infusion of gentian, to eight ounces.
Mix. Two table-spoonfuls three times a day.

16.—*Gentian and Senna Mixture.*

Compound infusion of gentian, four ounces.
Infusion of senna, four ounces.
Mix. Two table-spoonfuls three times a day.

17.—*Carminative Mixture.*

Powdered rhubarb, forty grains.
 Powdered ginger, forty grains.
 Bicarbonate of soda, eighty grains.
 Aromatic spirits of ammonia, two and a half drachms.
 Cinnamon water, to eight ounces.
 Mix. Two table-spoonfuls every four hours, or a single dose may be given.

18.—*Bismuth Mixture.*

Carbonate of bismuth, two drachms.
 Carbonate of magnesia, one drachm.
 Mucilage of tragacanth, one and a half ounces.
 Water, to eight ounces.
 Mix. Two table-spoonfuls every four hours, a quarter of an hour before meals.
 Three of the tabloids No. 13 are equivalent to one dose of this mixture.

19.—*Paregoric Mixture.*

Compound tincture of camphor, two drachms.
 Ipecacuanha wine, twenty-four minims.
 Tincture of henbane, one and a half drachms.
 Water, to eight ounces.
 Mix. Two table-spoonfuls every four hours.

20.—*Ipecacuanha and Squill Mixture.*

Ipecacuanha wine, two drachms.
 Tincture of squills, one drachm.
 Laudanum, half a drachm.
 Treacle, half an ounce.
 Water, to eight ounces.
 Mix. Two table-spoonfuls every four hours.

21.—*Carbonate of Ammonia Mixture.*

Carbonate of ammonia, forty grains.
 Chloric ether, two and a half drachms.
 Mucilage of acacia, two ounces.
 Water, to eight ounces.
 Mix. Two table-spoonfuls every four hours.

22.—*Ammonia and Senega Mixture.*

Carbonate of ammonia, half a drachm.
 Spirit of chloroform, one and a half drachms.
 Infusion of senega, to eight ounces.
 Mix. Two table-spoonfuls every four hours.

23.—*Creasote Mixture with Opium.*

Creasote, eight minims.
 Tincture of opium, sixteen minims.
 Spirit of chloroform, two drachms.
 Glycerine, one ounce.
 Water, to eight ounces.
 Mix. Two table-spoonfuls every four hours.

24.—*House Mixture.*

Sulphate of magnesia, two ounces.
 Powdered rhubarb, one drachm.
 Jalap, one drachm.
 Peppermint water, seven ounces.
 Mix. A sixth part for a dose.
 This "House Physic," or a similar preparation, is kept in the wards of nearly every hospital and infirmary.

25.—*Saline or Purgative White Mixture.*

Epsom salts, one and a half ounces.
 Carbonate of magnesia, one drachm.
 Peppermint water, to eight ounces.
 Mix. Dose, an eighth part or two table-spoonfuls.

26.—*Rochelle Draught.*

Rochelle salt, half an ounce.
 Syrup of ginger, a tea-spoonful.
 Lemon-juice, two table-spoonfuls.
 Water, four table-spoonfuls.
 Mix and drink.

27.—*Emetic Draught.*

Sulphate of zinc, twenty grains.
 Ipecacuanha wine, half an ounce.
 Water, one ounce.
 Mix. To be taken immediately. Its action may be aided by the free administration of warm water.
 The sulphate of zinc tabloids, No. 73, are useful as an emetic.

28.—*Diarrhœa Mixture.*

Dilute sulphuric acid, two drachms.
 Tincture of opium, one drachm.
 Spirit of chloroform, one and a half drachms.
 Water, to eight ounces.
 Mix. Two table-spoonfuls every four hours.

29.—*Astringent Mixture.*

Gallic acid, two drachms.
Dilute sulphuric acid, two drachms.
Water, to eight ounces.
Mix. Two table-spoonfuls every four hours.

30.—*Acetate of Lead Mixture.*

Acetate of lead, forty grains.
Dilute acetic acid, four drachms.
Cinnamon water, to eight ounces.
Mix. Two table-spoonfuls every four hours.

31.—*Bromide of Potassium Mixture.*

Bromide of potassium, two drachms.
Syrup of orange-peel, one ounce.
Water, to eight ounces.
Mix. Two table-spoonfuls three times a day.
Three of the bromide of potassium tabloids, No. 18, are equivalent to one dose of this mixture.

32.—*Iodide of Potassium Mixture.*

Iodide of potassium, forty grains.
Syrup of orange-peel, one ounce.
Water, to eight ounces.
Mix. Two table-spoonfuls three times a day.
One of the tabloids, No. 47, is equivalent to a dose of this mixture.

33.—*Colchicum Mixture.*

Bicarbonate of soda, one drachm.
Colchicum wine, three drachms.
Water, to eight ounces.
Mix. Two table-spoonfuls three times a day.

34.—*Sulphuric Acid Mixture.*

Epsom salts, four ounces.
Dilute sulphuric acid, two drachms.
Peppermint water, to eight ounces.
Mix. Two table-spoonfuls three or four times a day.

35.—*Tape-worm Draught.*

Liquid extract of fern-root, one drachm.
Syrup of ginger, one drachm.
Water, to one ounce.
To be taken fasting.

36.—*Sal Ammoniac Mixture.*

Sal ammoniac, eighty grains.
Carbonate of ammonia, forty grains.
Camphor water, to eight ounces.
Mix. Two table-spoonfuls every four hours.
Sal ammoniac can be obtained in tabloids containing either five or ten grains.

37.—*Sedative Draught.*

Bromide of potassium, twenty grains.
Syrup of chloral, one drachm.
Water, to one ounce.
Mix. The draught to be taken at bedtime.

38.—*Aconite Mixture.**

Tincture of aconite, fifteen minims.
Water, to two ounces.
Mix. A tea-spoonful to be taken every ten minutes for the first hour, and subsequently hourly for six or eight hours, or longer if necessary.
One of the aconite tabloids, No. 1, is equivalent to one dose of this mixture. It is safer to give aconite in the form of tabloids, as greater accuracy of dose can be ensured.

39.—*Belladonna Mixture.**

Tincture of belladonna, fifteen minims.
Water, to two ounces.
Mix. A tea-spoonful to be taken every quarter of an hour for the first hour, and subsequently hourly.
One of the belladonna tabloids, No. 9, is equivalent to a dose of this mixture.

40.—*Arsenic Mixture.**

Liquor arsenicalis, twelve minims.
Water, to two ounces.
Mix. A tea-spoonful every three or four hours.

* Although many of these mixtures are almost tasteless, they are perfectly active, and the dose recommended should not be exceeded.

41.—*Gelsemium Mixture.*

Tincture of gelsemium, two drachms.

Water, to eight ounces.

Mix. Two table-spoonfuls every four hours.

To be taken cautiously, and the effects carefully watched. If dimness of vision or unsteadiness of gait ensue, the dose to be reduced by a third, or the intervals prolonged to six hours.

42.—*Arnica Mixture.*

Tincture of arnica, half a drachm.

Water, to four ounces.

Mix. A tea-spoonful every ten minutes for the first hour, and subsequently hourly.

43.—*Pulsatilla Mixture.*

Tincture of pulsatilla, half a drachm.

Water, to four ounces.

Mix. A tea-spoonful every ten minutes for the first hour, and subsequently hourly.

44.—*Nux Vomica Mixture.*

Tincture of nux vomica, fifteen minims.

Water, to two ounces.

Mix. A tea-spoonful every quarter of an hour for the first hour, and subsequently hourly.

One of the nux vomica tabloids, No. 57, is practically equivalent to one dose of this mixture.

45.—*Hamamelis Mixture.*

Tincture of hamamelis virginica, half a drachm.

Water, to four ounces.

Mix. A tea-spoonful every hour for the first six or eight hours, and subsequently every three or four hours.

A tea-spoonful of "Hazeline" is equivalent to a dose of this mixture. It should be taken in a wineglass of water.

46.—*Tartarated Antimony Mixture.**

Tartarated antimony, half a grain.

Water, six ounces.

Dissolve. A tea-spoonful every quarter of an hour for the first hour; afterwards hourly.

47.—*Cantharides Mixture.**

Tincture of cantharides, fifteen minims.

Water, to two ounces.

Mix. A tea-spoonful every two or three hours.

48.—*Corrosive Sublimate Mixture.**

Corrosive sublimate, half a grain.

Water, eight ounces.

Mix. A tea-spoonful hourly for six hours.

49.—*Bryony Mixture.*

Tincture of bryony, half a drachm.

Water, to four ounces.

Mix. A tea-spoonful every hour.

50.—*Ipecacuanha Mixture.*

Ipecacuanha wine, one drachm.

Water, to eight ounces.

Mix. A tea-spoonful every hour.

51.—*Podophyllin Solution.*

Podophyllin (the resin), one grain.

Rectified spirits, two drachms.

Dissolve. Two or three drops on sugar every three hours.

52.—*Nitrite of Amyl Drops.*

Nitrite of amyl, eight minims.

Rectified spirit, half an ounce.

Mix. Three to five drops on sugar every three hours or oftener.

53.—*Phosphorus Solution.*

A saturated solution of phosphorus in ether.

Five drops in half a wine-glassful of water four times a day.

The "Elixoid" of phosphorus is a more palatable preparation. The dose is a tea-spoonful in water.

* Although many of these mixtures are almost tasteless, they are perfectly active, and the dose recommended should not be exceeded.

54.—*Phosphorus Capsules.*

Each containing one-thirtieth of a grain of phosphorus. One to be taken every three or four hours.

55.—*Hypophosphite of Lime Mixture.*

Hypophosphite of lime, one drachm.
Syrup, one ounce.
Water, to eight ounces.
Mix. One or two tea-spoonfuls three times a day.

56.—*Morphine Linctus.*

Solution of morphine, one and a half drachms.
Chloric ether, one and a half drachms.
Syrup of lemon, to four ounces.
A tea-spoonful occasionally when the cough is troublesome.

57.—*Squill and Opium Linctus.*

Oxymel of squill, ten drachms.
Compound tincture of camphor, five drachms.
Ipecacuanha wine, two and a half drachms.
Mucilage of acacia, to four ounces.
Mix. A tea-spoonful occasionally when the cough is troublesome.

58.—*Creasote Linctus.*

Creasote, four minims.
Glycerine, half an ounce.
Water, to four ounces.
Mix. A tea-spoonful when the cough is troublesome.

59.—*Confection of Sulphur and Senna.*

Confection of senna, ten drachms.
Sublimed sulphur, two drachms.
Mix. One or two tea-spoonfuls occasionally.

60.—*Aperient Pill.*

Compound colocynth pill, two grains.
Blue pill, one and a half grains.
Extract of henbane, one grain.
Powdered ipecacuanha, one third of a grain.
One pill to be taken at bed-time. Send a dozen.
The cathartic tabloids, No. 25, may be used in place of this pill. When a milder action is required the laxative tabloids, No. 51, may be employed. "Hashra tea" taken at bed-time is a useful purgative.

61.—*Calomel Pill.*

Calomel, three grains.
Extract of henbane, a sufficient quantity.
Make a pill. To be taken at bed-time.

62.—*Blue Pill with Opium.*

Blue pill, twenty-four grains.
Opium, two grains.
Divide into twelve pills. One to be taken three times a day.

63.—*Sulphate of Iron Pills.*

Dried sulphate of iron, one drachm.
Syrup, twelve drops.
Make twelve pills. One to be taken three times a day.

64.—*Iron and Aloes Pills.*

Sulphate of iron, forty-eight grains.
Watery extract of aloes, twenty-four grains.
To make twenty-four pills. One to be taken three times a day for four days, then one twice a day for four days, and then one a day for another four days.

65.—*Dinner Pills.*

Extract of Barbadoes aloes, two grains.
Extract of nux vomica, half a grain.
Extract of gentian, one grain and a half.
Make a pill. One to be taken once or twice a day, half an hour before meals. Send a dozen.

66.—*Oxide of Zinc Pills.*

Oxide of zinc, two and a half grains.
Extract of liquorice, a sufficient quantity.
Make a pill. One or two every night at bed-time. Send a dozen.

67.—*Indian Hemp Pills.*

Extract of Indian hemp, half a grain.
Make a pill. One to be taken three times a day.

68.—*Sulphide of Calcium Pilules.*

Sulphide of calcium, two grains.
Sugar of milk, forty grains.
To make twenty pilules. One to be taken every two hours.
The sulphide of calcium tabloids, No. 74, contain the same dose as this pill.

69.—*Lozenge Pills.*

Hydrochlorate of morphine, one thirty-sixth of a grain.

Extract of liquorice, three grains.

Compound powder of tragacanth, five grains.

To make a lozenge pill. One to be placed in the mouth and allowed to dissolve slowly when the cough is troublesome.

70.—*Tar Pills.*

Tar (*Pix Liquida*), two grains.

Lycopodium, one grain.

Make a pill. One every four hours.

The tar tabloids, No. 76, contain one grain in each.

71.—*Grey Powder with Sugar.*

Grey powder, two grains.

Powdered sugar, one drachm.

Divide into twelve powders. One four times a day.

72.—*Grey Powder and Rhubarb.*

Grey powder, three grains.

Rhubarb in powder, six grains.

Make a powder. To be taken at bed-time.

73.—*Calomel Powder with Sugar.*

Calomel, two grains.

Sugar, one drachm.

Divide into twelve powders. One every three or four hours.

74.—*Digestive Powders.*

Bicarbonate of potash, ten grains.

Bicarbonate of soda, ten grains.

Ginger, five grains.

Calumba in powder, five grains.

Mix. One three times a day, half an hour before meals.

75.—*Bismuth and Charcoal Powders.*

Carbonate of bismuth, ten grains.

Wood charcoal, ten grains.

Bicarbonate of soda, five grains.

Mix. To be taken three times a day, half an hour before meals.

76.—*Iron Powders.*

Reduced iron, seventy-two grains.

White sugar, a drachm.

Mix, and divide into twelve powders. One three times a day.

The reduced iron tabloids, No. 65, contain two grains in each.

77.—*Phosphate of Lime and Iron Powders.*

Phosphate of lime, one grain.

Phosphate of iron, one grain.

Saccharated carbonate of iron, one grain.

White sugar, five grains.

Mix. One three times a day. Send two dozen.

78.—*Sulphide of Calcium Powders.*

Sulphide of calcium, twenty-four grains.

Sugar of milk, half an ounce.

Thoroughly mix, and keep in a well-stoppered bottle. Dose, five grains, or as much as will cover a sixpence, every four hours.

The sulphide of calcium tabloids, No. 74, keep better, and are more convenient than these powders.

79.—*Santonin Powders.*

Santonin in powder, three grains.

Sugar in powder, twelve grains.

Mix. One at bed-time for a child from two to ten years of age; for an adult, two.

80.—*Dusting Powder.*

Oxide of zinc, one part.

Powdered starch, two parts.

Mix. For external application only.

Dermatol dusting powder is useful for toilet and nursery purposes.

81.—*Alum Gargle.*

Alum, two and a half drachms.

Honey, an ounce.

Rose water, a pint.

Mix. To be used three or four times a day. About two table-spoonfuls to be taken in the month, and this should be repeated four times on each occasion.

82.—*Tannic Acid Gargle.*

Glycerine of tannic acid, two ounces.

Water, to a pint.

Mix. To be used three or four times a day.

About two table-spoonfuls to be taken in the mouth, and this should be repeated four times on each occasion.

The tannic acid, or tannin tabloids, No. 75, contain two and a half grains in each, and, if slowly sucked, act as continuous gargle.

83.—*Borax Gargle.*

Borax, five drachms.

Water, a pint.

Mix. To be used three or four times a day.

About two table-spoonfuls to be taken in the mouth, and this should be repeated four times on each occasion.

Tabloids No. 17, 30, and 80 contain borax.

For the local action on the throat they must be sucked not swallowed.

84.—*Cayenne Pepper Gargle.*

Tincture of capsicum, one hundred minims.

Dilute acetic acid, fifty minims.

Water, to half a pint.

Mix. To be used two or three times a day.

85.—*Turpentine and Ammonia Liniment.*

Liniment of turpentine, one and a half ounces.

Solution of ammonia, one and a half ounces.

Oil of cajuput, half a drachm.

Olive oil, to four ounces.

Mix. To be rubbed into the chest every night at bedtime.

86.—*Neuralgia Liniment.*

Aconite liniment, two parts.

Chloroform liniment, one part.

Mix and label "Poison—not be taken." To be lightly painted over the painful part with a small brush. The application may be renewed several times in the course of the day. Care must be taken not to get it into cracks or cuts, and not to drop it into the eye.

87.—*Belladonna and Chloroform Liniment.*

Belladonna liniment, one part.

Chloroform liniment, two parts.

Mix. The liniment to be used once or twice a day.

88.—*Calomel Ointment.*

Calomel, one drachm.

Lanoline ointment, one ounce. Mix.

89.—*Dilute White Precipitate Ointment.*

White precipitate, five grains.

Lanoline ointment, one ounce. Mix.

90.—*Alkaline Lotion.*

Carbonate of soda, one tea-spoonful.

Water, one pint. Dissolve.

91.—*Sulphur Lotion*

Flowers of sulphur, one tea-spoonful.

Glycerine, two table-spoonfuls.

Rose water, half a pint. Mix.

92.—*Evaporating Lotion.*

Rectified spirit, two and a half ounces.

Water, to half a pint. Mix.

93.—*Red Wash.*

Sulphate of zinc, twenty grains.

Compound tincture of lavender, two drachms.

Water, to half a pint. Mix.

94.—*Arnica Lotion.*

May be made by adding twenty drops of the tincture of arnica to half a cupful of water.

95.—*Hamamelis Lotion.*

Tincture of hamamelis, three drachms.

Water, to half a pint. Mix.

96.—*Hydrastis Lotion.*

Muriate of hydrastin, three grains.

Distilled water, three ounces. Dissolve.

97.—*Calendula Lotion.*

Add a tea-spoonful of tincture of calendula to half a cupful of water.

98.—*Compound Jalap and Bitartrate of Potash Powders.*

Compound jalap powder, twenty grains.

Bitartrate of potash, ten grains.

Mix to make a powder. One to be taken every alternate morning. Send three.

99.—*Effervescing Ammonia Mixture.*

Carbonate of ammonia, two drachms.

Water, eight ounces.

Two table-spoonfuls, with one table-spoonful of the following, to be taken every four hours, whilst effervescing:—

Citric acid, one hundred and thirty-six grains.

Water, four ounces. Mix.

100.—*Nitro-Glycerine Mixture.*

Nitro-glycerine solution, one per cent., a drachm.

Water, to eight ounces.

A tea-spoonful or more every four hours, with an extra dose at the onset of each attack.

One trinitrine tabloid, No. 55, corresponds to a dose of this mixture.

101.—*Chian Turpentine Pills.*

Chian turpentine, six grains.

Flowers of sulphur, four grains.

To be made into two pills to be taken every four hours.

102.—*Picrotoxine Pills.*

Picrotoxine, a sixtieth of a grain.

Sugar of milk, a sufficient quantity.

To be made by first rubbing up the picrotoxine with sugar of milk, and then adding a little glycerine, or tragacanth. One at bed-time, and another in the early morning if necessary.

103.—*Hazeline Mixture.*

Hazeline, an ounce.

Water, to eight ounces.

Mix. A table-spoonful every four hours.

104.—*Hydrochloric Acid Gargle.*

Dilute hydrochloric acid, four drachms.

Glycerine, eight drachms.

Water, to a pint.

Mix. To be used three or four times a day.

About two table-spoonfuls to be taken into the mouth for each act of gargling, and this should be repeated four times on each occasion.

105.—*Inhalation of Friar's Balsam.*

Compound tincture of benzoin (Friar's balsam), an ounce.

A tea-spoonful in a pint of hot water (the right temperature is 140° Fahr.) for each inhalation. To be used for ten minutes three or four times a day. A common jug will do, but it is better to have a proper inhaler. Not more than six inspirations should be taken in the minute, and to avoid catching cold it is better not to go out for half an hour after each inhalation.

The vaporoles of compound tincture of benzoin, No. 3, are conveniently used in making this preparation. Two of them should be crushed and dropped into the water.

106.—*Iodine Inhalation.*

Tincture of iodine, an ounce.

Ten drops in a pint of hot water, to be used as an inhalation as directed above.

107.—*Inhalation of Oil of Juniper.*

English oil of juniper, twenty minims.

Light carbonate of magnesia, ten grains.

Water, to an ounce.

Mix. A tea-spoonful in a pint of hot water for an inhalation three or four times a day, as directed above.

108.—*Voice Lozenges.*

Benzoic acid, half a grain, made into a lozenge with red currant paste. Each lozenge is marked "B.A." One every four hours, and one a quarter of an hour before using the voice.

The voice tabloids, No. 80, contain chlorate of potash, borax, and cocaine.

109.—“*M.A.*” *Lozenges.*

Each contains two grains of chloride of ammonium with black currant paste. One or two may be taken every three hours or oftener. They are marked “M.A.”

The chloride of ammonium or sal ammoniac tabloids (T. 31) contain three grains in each.

110.—*Tannic Acid Lozenges.*

Each contains a grain and a half of tannic acid with black currant paste. One or two may be taken every three hours or oftener. They are marked “T.”

111.—*Rhatany Lozenges.*

Each contains three grains of extract of rhatany with red currant paste. One or two to be taken every three hours or oftener. They are marked “R.”

112.—*Chlorate of Potash Lozenges.*

Those of the British Pharmacopœia are hard and not very nice. They are better made with black currant paste. Each contains three grains, and one or two should be taken occasionally. They are marked “P.” Tabloids of chlorate of potash, No. 29, or of chlorate of potash and borax, No. 30, are preferable to lozenges.

LIST OF TABLOIDS.

The quantities are the quantities of each ingredient contained in each tabloid.

When a tabloid of a pill, or powder, is mentioned, it means that that particular pill or powder can be obtained in the form of a tabloid.

No. 1. ACONITE.—One drop of the tincture of aconite in each.

2. ANTACID.—Contain bicarbonate of soda 2 grains; bicarbonate of potash, 2 grains; carbonate of magnesia, 2 grains; and chloride of sodium, 3 grains.

3. ANTICONSTIPATION.—Aloin, $\frac{1}{5}$ grain; extract of belladonna, $\frac{1}{2}$ grain; strychnine, $\frac{1}{60}$ grain; ipecacuanha, $\frac{1}{16}$ grain.

4. ANTIFEBRIN.—2 grains in each.

5. ANTIPYRIN.—5 grains in each.

6. APOMORPHINE.— $\frac{1}{50}$ grain in each.

7. ARSENIC.— $\frac{1}{100}$ of a grain of arsenious acid in each.

8. ATROPINE.— $\frac{1}{100}$ grain in each.

9. BELLADONNA.—1 drop of the tincture in each.

No. 10. BELLADONNA.—5 drops of the tincture in each.

11. BICARBONATE OF POTASH.—5 grains in each.

12. BICARBONATE OF SODA.—5 grains in each.

13. BISMUTH.—5 grains in each.

14. BISMUTH AND SODA:—Nitrate of bismuth and carbonate of soda $2\frac{1}{2}$ grains of each, in each tabloid.

15. BLAUD'S PILL (Iron).—4 grains in each.

16. BLUE PILL.—3 grains in each.

17. BORAX.—5 grains in each.

18. BROMIDE OF POTASSIUM.—5 grains in each.

19. BROMIDE OF SODIUM.—5 grains in each.

* These should be taken after meals, and a glass of water should be taken after each tabloid.

- No. 20. CALOMEL.— $\frac{1}{10}$ grain in each.
- „ 21. CALOMEL.—1 grain in each.
- „ 22. CAPSICUM.—1 drop of the tincture in each.
- „ 23. CASCARA SAGRADA.—2 grains of the extract in each.
- „ 24. CASCARA COMPOUND.—Extract of cascara, 1 grain; enonymin, $\frac{1}{2}$ grain; extract of nux vomica, $\frac{1}{16}$ grain; extract of hyoseyamus, $\frac{1}{3}$ grain.
- „ 25. CATHARTIC.—United States Pharmacopœia.
- „ 26.—CHALK AND OPIUM.—5 grains.
- „ 27.—CHARCOAL (Willow).—5 grains in each.
- „ 28. CHLORAL.—5 grains in each.
- „ 29. CHLORATE OF POTASH.—5 grains.
- „ 30. CHLORATE OF POTASH WITH BORAX.
- „ 31. CHLORIDE OF AMMONIUM.—3 grains.
- „ 32. CHLORIDE OF AMMONIUM.—10 grains.
- „ 33. CITRATE OF CAFFEIN.—2 grains in each.
- „ 34. CITRATE OF IRON AND QUININE.—3 grains.
- „ 35. COCAINE.—1 grain in each.
- „ 36. COMPOUND RHUBARB PILL.—5 grains.
- „ 37. COMPOUND RHUBARB POWDER.—5 grains.
- „ 38. DIALYSED IRON.—10 drops in each.
- „ 39. DOVER'S POWDER.—5 grains in each.
- „ 40. EXALGIN.—2 grains in each.
- „ 41. EXPECTORANT.—Ipecaenauha and tartar emetic.
- „ 42. GREY POWDER.— $\frac{1}{3}$ grain in each.
- „ 43. GREY POWDER.—1 grain in each.
- „ 44. GUAIAECUM AND SULPHUR.—3 grains in each.
- „ 45. ICHTHYOL.— $2\frac{1}{2}$ grains in each.
- „ 46. INDIAN HEMP.—5 drops of tincture of cannabis indica in each.
- No. 47. *IODIDE OF POTASSIUM.—5 grains.
- „ 48. IRON AND ARSENIC.—Quinine, hypophosphite of iron, arsenic, and strychnine.
- „ 49. LAUDANUM.—2 drops in each.
- „ 50. LAUDANUM.—10 drops in each.
- „ 51. LAXATIVE.—Taraxacum, colocynth, jalap, and dandelion.
- „ 52. LITHIA.—2 grains in each.
- „ 53. MANGANESE.—2 grains of the bin-oxide in each.
- „ 54. MORPHINE.— $\frac{1}{20}$ grain in each.
- „ 55. NITROGLYCERINE ("Trinitrine").— $\frac{1}{100}$ grain in each.
- „ 56. NITROGLYCERINE COMPOUND ("Trinitrine Compound") with nitrite of amyl, capsicum, and menthol.
- „ 57. NUX VOMICA.—1 drop of the tincture in each.
- „ 58. PAPAIN.—2 grains in each.
- „ 59. PAREGORIC (Compound Tincture of Camphor).—5 drops in each.
- „ 60. PEPSINE.—5 grains in each.
- „ 61. *PERMANGANATE OF POTASSIUM.—1 grain in each. N.B.—These must be taken only after meals, and each tabloid should be followed by a glass of water.
- „ 62. PHENACETIN.—5 grains in each.
- „ 63. QUININE.—2 grains in each.
- „ 64. QUININE.—5 grains in each.
- „ 65. REDUCED IRON.—2 grains in each.
- „ 66. RHUBARB AND SODA (Gregory's Powder).—Rhubarb, bicarbonate of soda, and ginger.
- „ 67. SACCHARIN.— $\frac{1}{2}$ grain in each.
- „ 68. SALICIN.—5 grains in each.
- „ 69. SALICYLATE OF SODA.—5 grains.
- „ 70. SALOL.—5 grains in each.
- „ 71. SANTONIN.— $\frac{1}{2}$ grain in each.
- „ 72. SODA MINT.—Bicarbonate of soda, carbonate of ammonia, and peppermint.

No. 73. SULPHATE OF ZINC.—10 grains.

„ 74. SULPHIDE OF CALCIUM. — $\frac{1}{10}$ grain.

„ 75. SULPHONAL.—5 grains in each.

„ 76. TANNIN.— $2\frac{1}{2}$ grains in each.

„ 77. TAR.—1 grain in each.

„ 78. TARTAR EMETIC.— $\frac{1}{50}$ grain.

No. 79. TONIC.—Iron, quinine, and strychnine.

These tabloids are very active, and must be used with caution. Not adapted for children.

„ 80. VOICE.—Chlorate of potash, borax, and cocaine.

„ 81. WARBURG'S TINCTURE.—30 drops in each.

„ 82. ZYMINE.—3 grains in each.

PREPARATIONS OF EXTRACT OF MALT.

The various preparations of Extract of Malt are in such constant demand, and are used for so many different purposes, that the following list will be found useful. It will be remembered that Extract of Malt is a purely medicinal substance, and that it contains no alcohol, and is not an intoxicant. It is palatable, and is well adapted for children and those who are in weak health or are recovering from an acute illness. Each preparation has its own distinctive use and value, and the different varieties are not to be used indiscriminately.

1. Kepler extract of malt.
2. Kepler solution of cod-liver oil in extract of malt.
3. Kepler extract of malt with cod-liver oil and iodide of iron.
4. Kepler extract of malt with cod-liver oil and hypophosphites.
5. Kepler extract of malt with pepsin and pancreatin.
6. Kepler extract of malt with phosphates.
7. Kepler extract of malt with hypophosphites.

8. Malto-recine. This is a 50 per cent. solution of castor oil in Kepler extract.
9. Kepler extract of malt with cascara sagrada.
10. Kepler extract of malt with hops.
11. Kepler extract of malt with zymine.
12. Kepler essence of malt. This is a valuable nutriment and digestive agent, and with soda water, lemonade, or Rosbach water, makes a pleasant beverage.
13. There is also a Kepler extract with chocolate, which is a great favourite with children.

VAPOROLES.

Vaporoles are used both for inhalation and fumigation. The drug is enclosed in a little glass capsule surrounded by cotton wool and enclosed in a silken sack. They are sold in boxes, each containing one

dozen. For use the vaporole is crushed between the finger and thumb, and is then dropped into a jug or inhaler containing half a pint of hot—not boiling—water, the fumes being slowly inhaled. In the case of the vaporoles marked with an asterisk, an inhaler is not necessary, and the fumes may be inhaled by simply holding the crushed vaporole in the hand. For fumigation the crushed vaporole is placed on a hot plate, when the vapour will in a few minutes impregnate the air of the room. One great advantage of the vaporoles is that they are quite portable, and an inhalation may be extemporised in a few minutes.

LIST OF VAPOROLES.

- | | |
|--|---|
| 1. Carbolie acid, twenty drops in each. | 7. Cubebs and lemon, five drops in each. |
| *2. Ether, thirty drops in each. | 8. Tincture of iodine, ten drops in each. |
| 3. Nitrite of amyl, five drops in each. | 9. Juniper, two and a half drops in each. |
| 4. Friar's balsam, thirty drops in each. | *10. Pure terebene, ten drops in each. |
| *5. Chloroform, thirty drops in each. | *11. Pinol, ten drops in each. |
| 6. Creasote, ten drops in each. | 12. Eucalyptia, ten drops in each. |

MEDICINE CHESTS.

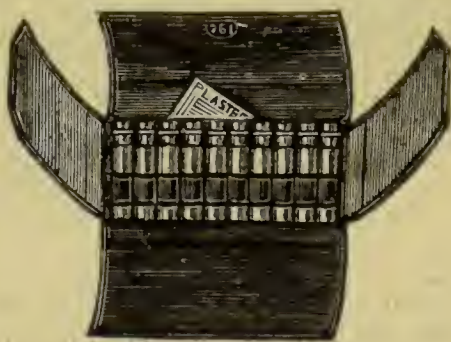
THERE should be a medicine chest in every house, especially if the house is in the country, or far from a chemist. Even if there should be a chemist's shop close handy, it is just as well to have a medicine chest, for accidents will happen, and an emetic or a dose of medicine may be wanted at a moment's notice, perhaps when no messenger is available or when the chemist's shop is closed. In the colonies, where medical advice is not readily obtainable, a medicine chest is absolutely indispensable. A medicine chest is much better than a medicine cupboard, for except in very large establishments, a stock of drugs sufficient to fill a cupboard is never needed, and moreover, a chest is portable, whilst a cupboard is not. The old-fashioned mahogany medicine chest with its big bottles and weights and measures, not to mention the pestle and mortar and the drawer which would never open, is quite a thing of the past, and should be discarded and replaced by a neat little morocco case containing a selection of tabloids ready for use. It is better not to lock it, or the key will not be found when wanted, but it should be kept in some safe place out of reach of children.

Medicine pocket cases and medicine chests of all shapes and sizes can be obtained without difficulty. A well-known firm of manufacturing chemists in London have for many years devoted attention to this industry, and made a specialty of medical chests for travelling, colonial, or foreign use. They are in all cases prepared to place their experience at the disposal of explorers, colonists, and others. Mr. H. M. Stanley, in "Darkest Africa," says, "They have sought the best medical advice, and really seem disposed to study the special needs of the East, West, Central, Northern, or Southern African traveller, soldier, trader, or missionary. I have informed them of the few diseases such as have fallen under my observation, and they have prepared such medicines as have been tried during the last seventeen years of my African experiences. They have prepared small doses in tabloids, which may be taken without creating nausea—a valuable desideratum, as all will admit who have suffered from the foul, nauseating smell of medicines as commonly prepared by druggists."

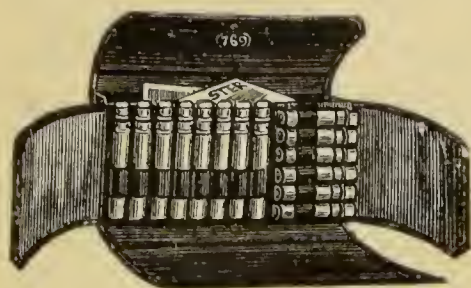
A small and very simple metallic pocket case containing five bottles can be obtained for half-a-crown; or fitted completely for three or four shillings. A case of this description might be arranged to hold sal-volatile, chloric ether, essence of camphor, compound rhubarb pills, and bromide of potassium; or, better still, a selection of tabloids, such as Bland's pill (T. 15), bromide of potassium (T. 18), Dover's powder (T. 39), laxative (T. 51), quinine (T. 63), and soda-mint (T. 72).

A morocco case containing ten three-drachm phials might be obtained for 12s. 6d., and would answer most purposes. It would contain sal-volatile, chloric ether, laudanum, chlorodyne, ipecacuanha wine, tincture of quinine, essence of camphor, tincture of iron, compound colocynth pill, and belladonna liniment; or some similar selection of drugs. If in the form of tabloids the selection might comprise quinine (T. 63), laxative (T. 51), Bland's pill (T. 15), soda-mint (T. 72), chlorate of potash with borax (T. 30), salicine (T. 68), sulphate of zinc (T. 73), Dover's powder (T. 39), calomel (T. 20), and antipyrine (T. 5).

A calf-covered case containing eighteen phials costs about 16s. and may be conveniently fitted with the following selection of



tabloids:—Antipyrine, bromide of potassium, quinine, Dover's powder, chlorate of potash, pepsin, soda-mint, iodide of potassium, salicylate of soda, eucalyptia, sulphate of zinc, bicarbonate of soda, blue pill, Gregory's powder, nitre, and sulphate of iron.



A medicine case filled with portable medicines enough to last three months costs 12s. The engraving shows the form in which this case is usually supplied, the medicines being carefully chosen to furnish in small bulk immediate remedies for the usual complaints of a tropical country.

A colonial medicine chest, well adapted for colonists, costs about 15s. unfurnished, or when filled with a large supply of medicines, about 50s.

A model medicine chest, complete, may be obtained, without medicines, for 30s. The cost of this furnished will depend somewhat on the selection of medicines, which selection will be materially influenced



by the nature of the climate, being entirely different for a tropical or marshy country from what it would be for an English country house.

The "Congo Medicine Chest," as supplied to Mr. H. M. Stanley, contains a large selection of drugs and instruments, and is adapted for a lengthy campaign,

with special reference to the risks and accidents, as well as diseases, likely to be encountered in tropical travel.

VII.—INDICATIONS OF DISEASE.

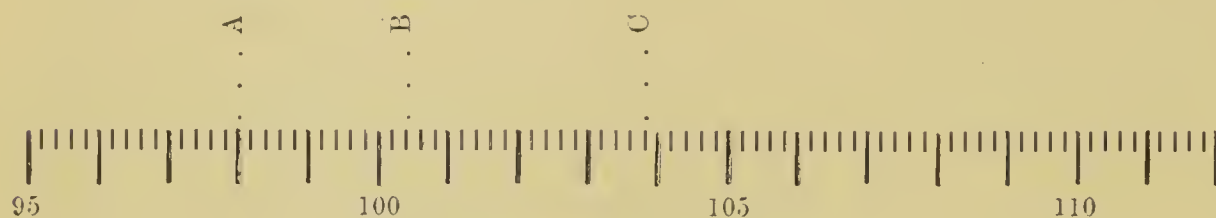
TEMPERATURE AND THE CLINICAL THERMOMETER.

IT would be difficult to over-estimate the value of the information afforded by the clinical thermometer as a guide to the detection and treatment of disease. This little instrument is so simple in structure, and its use is so easily acquired, that it should be in the hands of everyone who aspires, in however humble a degree, to relieve the sufferings of his fellow-creatures. Every mother should at once get a thermometer, and learn how to take the temperature of her children. A single observation may remove the most distressing anxiety as to the nature of a temporary indisposition, and show the absence of grounds for alarm. It will serve to indicate the existence of many maladies in their very earliest stages, and point out the necessity for treatment at the time when it is most likely to prove of avail. Elevation of temperature is in itself a distinct indication for the administration of certain remedies, the success of which depends upon their being given at once.

We have no hesitation in saying that the thermometer has done more than anything to render accurate our knowledge of the nature of disease, and to advance the art of treatment. It is now in daily, nay hourly, use in every hospital in London, and ranks in importance with the stethoscope. A doctor without his thermometer is like a sailor without his compass. No one should undertake any case of fever who has not at his disposal the means of obtaining a systematic record of the temperature. The man who attempts to treat a case of scarlet or typhoid fever without a knowledge of the temperature is doing justice neither to himself nor to his patient; he is simply groping in the dark. No amount of practical knowledge and no amount of experience will enable a man to dispense with the information afforded by this little instrument. Of course, the actual work of temperature-taking must be performed by those who have immediate charge of the patient, just as to them is entrusted the administration of the medicines. In many cases it is necessary that the temperature should be taken six times in the twenty-four hours, and it is obviously impossible that a doctor in active practice could do this himself. In the case of children and young people there is no one so fitted to perform this duty as their mother. Every mother should love, study, and

trust the thermometer, the little magician, who, like the little finger in the fairy tale, tells things that no one else could tell. With it she will give the doctor a trusty account of the condition of his patient. During his absence her hand will be his hand, her eye his eye, and more than that, seeing a sudden rise or fall of temperature when he is away, she foresees the peril that thermometry predicts several hours in advance, as the barometer does the storm, her mind becomes his mind, she hastens his return, and enables him to ward off a deadly exacerbation or collapse, truly herself saving the life of the patient.

The clinical thermometer does not differ essentially in principle from an ordinary garden thermometer. It is, of course, smaller, and more accurate, and more delicate, and it is not supported in a frame. The figures are engraved on the glass itself, and it is usually graduated from



THERMOMETER SCALE ENLARGED.

95° to 112°. Either the Fahrenheit or Centigrade scale may be used, but in this country the former is nearly always employed. The thermometer is what is called "self-registering," that is, you can take a temperature with it, lay it aside, and read it off at your leisure. At the top of the ordinary column of mercury there is a little piece which has been purposely detached to serve as an index. Before taking a temperature this is shaken down to about 96°, and then, when the mercury rises, it drives the index before it, and leaves it at the highest point it has reached. The object of the constriction is to prevent the index from being accidentally shaken down into the bulb and lost. It should be noted that it is the upper end of the index, *i.e.*, the end farthest from the bulb, which indicates the correct temperature. The mode of graduation is perfectly simple. Each of the big lines indicates a degree, although, as a matter of convenience, only every fifth degree is numbered. Each degree is divided by the smaller lines into fifths. For example, if, after making an observation, the upper end of the index stood at the point marked A in the figure, we should say the temperature was 98°, if it stood at B we should say it was 100° and $\frac{2}{5}$, and if at C 103° and $\frac{3}{5}$. As a matter of convenience we always write the temperature in figures, and express the fraction in decimals or

tenths of a degree. Thus $\frac{2}{5}$ we write as $\cdot 4$, that is, $\frac{4}{10}$, and $\frac{1}{5}$ as $\cdot 8$, or $\frac{8}{10}$. Thus we write down our first temperature, that at A, as $97\cdot 0$, that at B as $100\cdot 4^{\circ}$, and that at C as $103\cdot 8$. Very often the letter F., indicating Fahrenheit, is put after the figure, as $101\cdot 6^{\circ}$ F.; but this is not necessary. We must now explain what the little arrow at $98\cdot 4^{\circ}$ means. This indicates the normal or natural temperature of the body, and if you take your own temperature you will find that that is about what it comes to. A little variation on one side or other of this point is of no importance, and is quite compatible with health.

Clinical thermometers can be bought at any instrument maker's, or your chemist will get you one. They can be sent by post, so there is never any difficulty in obtaining them. What you want is a "clinical self-registering thermometer." They are made of all sizes, but you will find the 4-inch the most convenient. They are supplied in a little metal or box-wood case, and with care they will last for almost any length of time, although they, of course, will not stand rough usage. The price varies according to their accuracy and quality from 3s. 6d. to half-a-guinea. Do not be persuaded to purchase ornamental cases or anything of that kind. What you want is a plain serviceable instrument, and the simpler the better. In shaking down the index be careful not to shake it right down into the bulb, or you will never get it up again. Hold the thermometer firmly in your right hand, and then tap that hand against the other till you gradually shake the index down to well below normal. You will find that in course of time, with constant washing, the black will come off the figures, and they will be less easily read. You can easily restore that by rubbing them with a little heel-ball obtained from the cobbler's.

Thermometers in constant use ought to be carefully compared from time to time with a standard thermometer, as from a slight contraction of the glass of the bulb they are apt to register too high. It is almost impossible to get a thermometer which is absolutely correct at all temperatures; but if the error does not amount to more than a fifth of a degree it is for practical purposes of little importance. When there is any doubt about the correctness of a thermometer, the best plan is to send it for examination to the Kew Observatory. The authorities issue a certificate, for which they charge a small fee. This certificate is in no way a guarantee that the thermometer is a good one, but simply points out the amount of error at different temperatures. A bad thermometer is just as much entitled to a certificate as a good one. As a matter of fact, the incorrectness of a thermometer is of no importance if only the amount of error is known, and is allowed for, but it must

be remembered that the inaccuracy may not be uniform, and may differ materially at different points of the scale.

We must now explain the mode of taking the temperature. There are three regions in which the temperature may be conveniently taken—the bowel, the arm-pit, and under the tongue. In the case of children, in whom a knowledge of the temperature is always very important, the bowel is undoubtedly the most convenient, and is in every way preferable. The child is not frightened by seeing the instrument, and but little care is required to maintain it in position. The observation is quickly made, and its accuracy is not influenced by the restlessness of the patient. With adults the temperature is less frequently taken in the bowel, but in cases of high fever treated by cold baths, it must of necessity be taken in this region—for the arm-pits are under water, and the chattering of the teeth would prevent an observation from being made in the mouth. It may be asked is there no fear of the thermometer being broken in the bowel? The risk of accident is extremely small, supposing the slightest care to be taken. In the case of a child a little gentle restraint will obviate any danger, whilst an adult with a thermometer in his rectum readily appreciates the necessity for remaining quiet. For some years past the temperature of every patient in the children's wards of one of our best London hospitals has been uniformly taken in the bowel, six times a day, without the occurrence of any accident. In adults the temperature is ordinarily taken in the arm-pit or under the tongue. The temperature under the tongue is more readily and quickly ascertained, and particularly in the case of patients not confined to bed, is more reliable than when taken in the arm-pit. Under certain circumstances the temperature must be taken in the mouth, as when the patient is in a vapour bath or "wet-pack," and in some cases of rheumatic fever, where the slightest movement of the limbs causes the most exquisite pain. In other instances the temperature cannot be taken in the mouth, as when the patient is unable from constant cough or shortness of breath to retain the instrument long enough for a satisfactory reading to be obtained. In cases of St. Vitus's dance the force and frequency of the involuntary movements may not only put difficulties in the way of making an observation, but it may jeopardise the safety of the instrument. When from any reason the temperature cannot be taken in the mouth, recourse must be had to the arm-pit. The chief objections to arm-pit temperature are the length of time taken for the mercury to become stationary, and the difficulty experienced with people who are thin in approximating the arm

sufficiently to the body. Arm-pit temperatures in cases of consumption are on this account usually untrustworthy.

The temperature of the extremities may be ascertained by holding the thermometer in the closed fist, or by inserting the bulb between the clefts of the fingers or toes. The latter method is especially useful in cases of supposed injury to the local nervous supply, as when one of the nerves of the limb has been accidentally injured. In diseases of the nervous system it is occasionally necessary to ascertain the temperature of the surface of the body, a knowledge of the differential temperature of corresponding parts on opposite sides often proving in obscure cases an assistance in forming an opinion as to the nature of the complaint.

The following is the method of taking the temperature in the arm-pit:—

1. The index should be shaken down and the thermometer warmed by holding it for a few minutes in the hand.

2. The patient, if lying on the side, should be turned over, and the observation made in what was the dependent arm-pit.

3. The bulb of the instrument should be placed between the anterior and posterior folds of the arm-pit, and care should be taken that it is actually in contact with the skin all round, and not with the night-dress.

4. The patient should be made to lie in such a position that the fore-arm falls naturally across the chest, and by its weight converts the arm-pit into a closed cavity.

5. The thermometer should be retained in position for five minutes.

The object of taking the temperature in the dependent arm-pit is that it will have been less exposed, and its temperature will consequently more quickly indicate the true temperature of the body. It is a matter of indifference whether the temperature be taken in the right or left arm-pit. In cases where the patient is restless or delirious it may be necessary to hold the thermometer in position, and see that the arm is actually kept in contact with the body. Temperatures taken in the arm-pit in the cases of people not in bed are seldom trustworthy.

The following is the method of taking the temperature under the tongue:—

1. The index should be shaken down, and the thermometer warmed by holding it in the hand, as before directed.

2. The bulb of the thermometer should be placed as far back under the tongue as possible.

3. The mouth should be closed and respiration carried on entirely through the nose.

4. The thermometer should be kept in position for three minutes.

In taking temperatures in the mouth it is essential to ascertain that the bulb of the thermometer is actually under the tongue. It has been found experimentally that the temperature recorded by a thermometer placed between the inside of the cheek and the gums is considerably below that of the real temperature of the body, the actual difference depending on the temperature of the external air.

The following is the mode of taking the temperature in the bowel:—

1. If the patient is an adult he should lie on one side with his knees well drawn up; a child may be placed on his chest across his mother's knees or, what is better, the legs may be simply held up and slightly separated so as to expose the part.

2. The index having been shaken down in the usual way and the thermometer dipped in olive oil, the bulb should be passed for a distance of about two inches through the anus into the bowel. The whole of the thermometer is not to be introduced.

3. The contraction of the muscle of the orifice will probably retain it in position, but it is better to hold it in case it should be shot out by a sudden expulsive effort.

4. The observation should be made for three minutes. In the case of adults the temperature can be readily taken beneath the sheet, without any exposure. The introduction of the instrument causes no pain, unless the patient happen to be suffering from piles. It is quite possible, if thought desirable, to take the temperature in this way during sleep.

It will be seen that the time required for thermometrical observations varies with the different regions in which they are taken. Thus the time required for an observation in the bowel, or under the tongue, is three minutes, and in the arm-pit, previously covered up, five minutes.

It may not be superfluous to point out the necessity for washing the instrument after each observation. In the case of contagious diseases, the thermometer should always be disinfected in weak carbolic acid, or Condyl's Fluid, after being used. It is advisable to make it a rule to wash the instrument in the presence of the patient both before and after taking the temperature.

How often should the temperature be taken? This must depend on

the nature and urgency of the case. In many chronic illnesses a morning and evening examination amply suffices. In acute cases, such as the different fevers, six observations in the twenty-four hours should, if possible, be made. In cases of very high temperature—hyperpyrexia—where the danger is imminent, it may be necessary to take the temperature every half-hour, or even oftener.

When should the temperature be taken? When only two observations are made in the day, one should be about eight in the morning, and the other about the same hour in the evening. When the observations are made three times a day, the temperature may in addition be taken at 2 p.m. When six observations are made in the course of the twenty-four hours, the most convenient hours are three, seven, and eleven, night and day. Should there be reason to suspect that a rise of temperature occurs at other times, or should any special change be noticed in the condition of the patient, this would of course be an indication for taking the temperature. It is seldom necessary to wake the patient at night to take the temperature, the thermometer can easily be slipped into the arm-pit, or, in the case of a child, into the bowel, without causing any disturbance. The temperature should in the same case be always taken in the same region—for example, if you begin with the bowel you should go on with it.

It is essential not only that the temperature should be carefully taken, but that it should be systematically recorded. It will not do to trust to your memory. You should have a form on which to put down the figures at once. We append an example (*see* CHART).

These forms can readily be drawn out with pen and ink, but for schools, where there is much sickness, and for those who visit the sick poor, it would be advisable to get them already printed. They are in constant use in all the metropolitan hospitals, and can be obtained for 1s. or 1s. 6d. a dozen where you purchased your thermometer. They serve not only as a record of the temperature, but also of the pulse and respiration. Under the heading of remarks you may enter the state of the bowels, or any other fact that may strike you as being of importance. Our example is taken from an actual case of rheumatic fever, although, of course, the name of the patient is fictitious. It will be seen that the temperature was taken only twice a day, and that is hardly sufficient. The fact is, the patient was a bachelor, living in rooms, and had no skilled assistance in the shape of a trained nurse. He was unable to take the temperature himself, as the pain in the joints was very great, and the slightest movement increased it. In spite

of the small number of observations, the temperature afforded valuable information as to his progress, and served to relieve his medical attendant of much anxiety.

Sometimes it is desirable to record the temperature on a chart. This graphic method is so commonly adopted for illustrating the variations in the height of the barometer that it must be familiar to most of our

Temperature taken (under the tongue).

Name—REGINALD VERNON, Esq., Montague House, Wimbledon.

Illness—Rheumatic Fever; taken ill on the 8th.

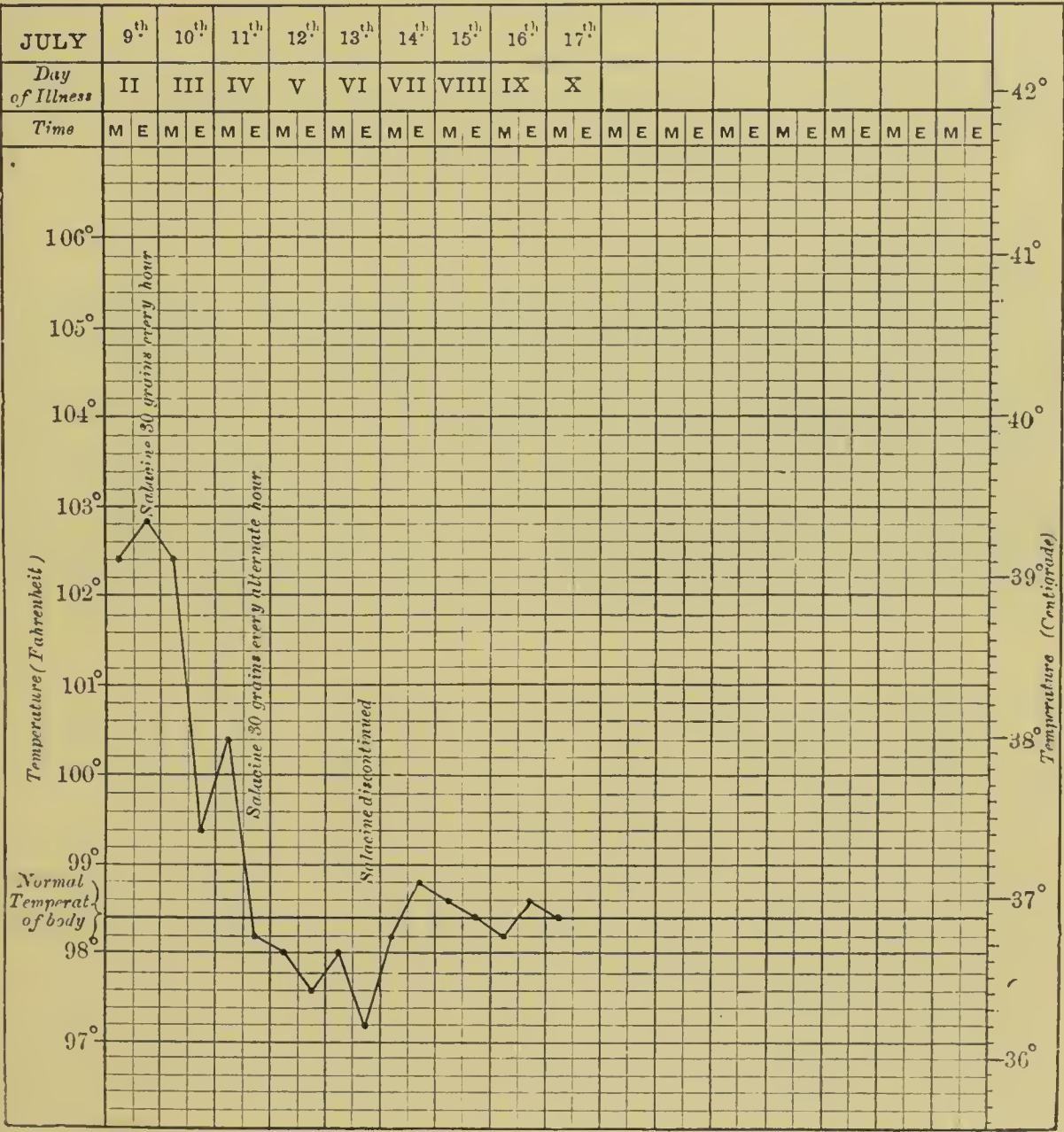
DATE.	Hour.	TEMP.	PULSE.	RESP.	REMARKS.
1893.					
July 9th . .	11.30 a.m.	102.4	118	40	No medicine.
	11.30 p.m.	102.8	116	50	To take 30 grains of
„ 10th . .	11.30 a.m.	102.4	120	40	salicine every hour.
	11.30 p.m.	99.4	94	44	
„ 11th . .	11.0 a.m.	100.4	104	46	
	11.30 p.m.	98.2	100	32	To take the salicine
„ 12th . .	11.0 a.m.	98.0	—	—	every alternate hour.
	11.0 p.m.	97.6	84	32	
„ 13th . .	11.30 a.m.	98.0	—	—	
	11.30 p.m.	97.2	80	26	Salicine discontinued—
„ 14th . .	11.30 a.m.	98.2	—	—	last dose at 11 p.m.
	11.30 p.m.	98.8	82	24	
„ 15th . .	11.30 a.m.	98.6	—	—	
	11.30 p.m.	98.4	78	24	
„ 16th . .	11.30 a.m.	98.2	—	—	
	11.0 p.m.	98.6	76	20	
„ 17th . .	11.0 a.m.	98.4	—	—	

readers. A glance at the accompanying chart will serve to explain the system.

At the top you record the name, age, and the nature of the illness of the patient. Then in the first column, extending from side to side, you put the day of the month, and the initial of the day of the week above it if you like. Then in the next horizontal column you write the day of the illness, generally in Roman figures. For instance, in this case—which is the same as that referred to on the sheet—the patient was quite well on the 7th, on the 8th he felt hot and feverish, and had pains in his joints, and on the 9th he sent for his doctor. Here the 9th was clearly enough the second day of the illness. Sometimes, especially in typhoid fever, you may be unable to determine with accuracy the day

of onset of the illness, and you may have to leave this line blank. In chronic cases, when the patient has been ill for weeks and months, it is

Name—REGINALD VERNON, Esq., Montague House, Wimbledon. Age—23.
Illness—Rheumatic Fever.



TEMPERATURE CHART.

never necessary to fill it in. The big letters M and E in the next line mean morning and evening. This chart is intended to record only two temperatures a day, but when an observation is made oftener, say six times in the twenty-four hours, you draw a larger number of columns

for the day, and put the hour, A.M. or P.M., at the top of each. The black lines running from side to side with the figures attached correspond to the scale of the thermometer. Thus a temperature of 100° Fahr. would be indicated by a dot placed on the line marked on your left with 100, in the morning or evening column as the case might be. The faint dotted lines between and parallel with these black lines indicate divisions of a degree, just as do the smaller marks on the thermometer scale. For example, the temperature of our patient on the morning of the 9th was 102° and two-fifths, that is 102° and four-tenths, or 102.4° , so we put a dot on the second faint line above the 102. The space between each degree is divided into ten equal parts, but as a matter of convenience only five of the faint lines are drawn, so that each of them represent two-tenths of a degree. Thus the first faint line above 102° is 102.2° , the next is 102.4° , and so on, and the same with the other degrees. The thick black line opposite 98.4° Fahr. is the normal temperature of the body, and corresponds to the little arrow on the thermometer. The figures on your right hand, ranging from 36 to 42, are the corresponding figures on the Centigrade scale. You need not trouble about them unless you are abroad and can get nothing but a Centigrade thermometer, when you will find them useful.

All this looks a little bit complicated at first sight, but it is not so in reality. It is as easy as A B C when you just get over the first difficulty, and it is almost impossible for you to make any mistake. The object of joining the dots by lines is that you can see at a glance the course of the temperature. For instance, in this case salicine was given, and the fall in the temperature which it caused is very obvious. The drop on the third day of illness is entirely due to the treatment, and would not have occurred in the natural course of the disease. The fever was cut short by the salicine, for after the fourth day the temperature practically never rose above the normal, and all cause for anxiety was at an end.

It is a remarkable fact that the temperature in health should be practically the same in everybody, and under very diverse conditions of occupation, climate, food, and so on. The maintenance of animal heat is due chiefly to chemical changes, especially oxidation, aided to a small extent by processes of a physical nature, such as friction, and the transformation of other forms of energy. The heat of the body is regulated by a kind of automatic apparatus. When too much heat is generated the blood vessels of the skin are dilated, the heart's action is accelerated, and the blood rushes to the surface, where it is cooled, partly by

exposure to the external air, and partly by the evaporation of the sweat which under these circumstances is poured out in increased quantity. When, on the other hand, the production of heat falls below the normal quantity, the blood vessels of the skin promptly contract, so that very little blood passes through them, the heart simultaneously slowing down so that as much heat as possible is retained in the body. This constant balance of forces is always in progress, and takes place with such wonderful regularity and accuracy that we go about our work and perform our daily avocations without being even aware of the wonderful mechanism which regulates our well-being. In disease this



THE DIURNAL RANGE OF TEMPERATURE IN HEALTH.

arrangement is temporarily thrown out of gear, and we notice a more or less marked departure from the normal temperature of the body.

As we have seen, the normal temperature of the body—the point at which the arrow is placed on our clinical thermometers—is 98.4° F.; but the temperature at different periods of the day, and under the diverse conditions to which we are exposed, may, and ordinarily does, range fractionally on either side of that point without indicating any departure from health. There is, in fact, a diurnal range of temperature. The temperature reaches its highest point about 9 a.m., and continues much the same during the chief part of the day; whilst in the evening it uniformly and gently falls, and remains at its lowest depression during several hours of the night; but subsequently, in the early morning hours, it again uniformly and quickly rises. This is well illustrated by the accompanying chart of the temperature of a healthy boy, taken at hourly or half-hourly intervals for a period of two days.

This diurnal rise and fall constitutes the only great variation. In young people the evening fall usually begins between five and seven p.m., but exceptions sometimes occur, for the evening fall may begin

either before or after the time stated. The fall, however, happens more frequently before this time than after. The morning rise usually begins between three and seven a.m., and is completed by nine a.m. After this hour the temperature usually remains at much the same height until the evening fall begins. The daily variation in old people is considerably less than that of young people: in fact, the variation in persons over forty is only half that of persons under twenty-five years. But the difference is not merely in the amount of depression, but in the manner of its occurrence. In young people there is in the evening a very rapid fall, and the minimum temperature of the day is quickly reached, often, indeed, in three or four hours. In persons over forty so rapid a fall rarely occurs; but the temperature usually declines very slowly, and as soon as the minimum is reached it again begins to rise, so that not only is the amount of the evening fall less in these older persons, but the period of the depression is also shorter, generally very much shorter. On some days, curiously enough, no diurnal variation occurs in persons over forty years of age. In middle-aged adults, apparently the diurnal fall does not observe any particular time, but occurs sometimes in the middle of the night, and at other times in the morning, about 9 a.m. It may be taken as a rule that the older the person the later in the day the diurnal fall begins; thus in a child aged five it began between two and three p.m.; in two boys aged eleven, between four and seven p.m.; in two men aged fifty-five and sixty-eight, between nine and eleven p.m. Respecting the cause of this diurnal rise and fall we know little. It is easy to theorise, but difficult to arrive at any definite conclusion, or to obtain trustworthy evidence on the subject. It has been clearly shown by keeping people in the dark that it is not due to the action of light. It has, moreover, been proved that it is not due either to food or exercise.

Food has little or no influence on the temperature of healthy people. When the morning rise of temperature has been delayed by long abstinence from food, breakfast, by restoring the tone of the system, will enable this to take place, but this is all that it can do. If you take your temperature just before a midday dinner, and just after, you will find that there is very little, if any, variation. To establish this point you would, of course, have to make the observation on several occasions. A cup of hot tea will temporarily raise the temperature taken under the tongue by a degree or more. Alcohol distinctly depresses the temperature. When you take a glass of spirits, you do not keep out the cold, but, on the contrary, let it in.

Exercise elevates the temperature slightly. Thus an observer took his temperature at 3.30 p.m., and found that it was 98.6° F. He then walked to the top of Highgate Hill, a distance of some five miles, and found that his temperature was 99° F.

It is greatly to be regretted that our knowledge of the course of the temperature in health is so meagre. Any one—man or woman—who would take his own temperature several times a day at definite hours for a period of six months, and would publish his results, would be conferring a great benefit on science. It would be especially important to work out fully the influence of food, exercise, etc., on the healthy temperature. Work of this kind is readily accepted and published by the Royal Society. As a model for work, Ogle "On the Diurnal Variations of the Temperature of the Human Body," St. George's Hospital Reports, 1866, vol. i., may be consulted.

It has been stated that the temperature is slightly higher in women than in men, but it must be admitted that on this point we have no information that can for one moment be regarded as conclusive. Mental exertion, such as literary composition or reading a work of exciting interest, is said to cause a slight elevation of temperature, the mean of a number of observations made under these circumstances being slightly higher than the mean of an equal number made at the same period of the twenty-four hours, when the attention was not roused, as when reading an uninteresting book, or when engaged in the mechanical process of copying manuscript. During sleep, however, when it may be supposed that there is a total absence of mental exertion, there is no fall of temperature. The fall that takes place at night is due to the diurnal range of temperature, and occurs with equal regularity sleeping or waking.

The temperature of the body is, to a certain extent, influenced by the temperature of the external medium. The variations that occur in the temperature of the air are ordinarily too slight to affect it to any appreciable extent. In the Turkish bath, with the temperature at 130° F. or thereabouts, there is usually an elevation of 2° or 3° in the temperature of the body. In a hot-water bath the temperature may be raised from 1° to 4° , the amount of elevation being dependent on the temperature and duration of the bath. In baths of a moderate heat— 101° to 102° —the temperature of the body rapidly assumes that of the surrounding medium, and there can be but little doubt that the same accordance would be observed at still higher temperatures, were it not for the impossibility of any one remaining in a very hot bath for more than a few

minutes. Hot vapour baths are equally efficacious in raising the temperature, an elevation of from 2° to 3° being readily obtainable. The rapidity with which the temperature falls on removal from the bath is very remarkable, a degree being sometimes lost in less than five minutes. Cold baths exert a powerful influence in lowering not only the surface heat, but also the temperature of the interior of the body. It is possible by means of the cold bath to reduce the temperature to 87° F., but so great a depression as this occurs only when the water is very cold and the bath is continued for a considerable time—for from a quarter to half an hour. Sometimes the maximum depression is not obtained during the continuance of the bath, the temperature of the body falling for some time after.

Menstruation occurring normally in healthy young women usually produces no disturbance of the temperature, but occasionally there is, without any apparent cause, a slight elevation at these times. The uniform occurrence of a febrile condition at the monthly periods may be regarded as an indication of the existence of a morbid condition of the parts concerned in producing the menstrual flow.

It is by the thermometer alone that we can determine with accuracy the temperature of the body. The significance of abnormal temperature as an indication of disease has long been recognised. For more than 2,000 years it has been known that elevation of temperature is a pathognomonic symptom of fever, and thus fever and preternatural heat of the body have come to be regarded as synonymous terms. Before the invention of the clinical thermometer it was customary to rely chiefly on the state of the pulse and the heat of the skin, as estimated by the hand, for the detection of fever. The hand is quite untrustworthy as a test or measure of temperature, and consequently of the existence of febrile disturbance. A dry skin may readily be mistaken by the hand for fever, whilst similarly a moist skin may mask the presence of elevation of temperature. The hand, even if sufficiently sensitive, could do no more than estimate the temperature of the surface of the body; the thermometer indicates the heat of the interior. A relationship, it is true, ordinarily exists between the pulse-rate and the temperature, but this is so prone to disturbance from trivial causes as to render it unreliable as an indication of the existence of fever. We will refer to this at greater length when speaking of the pulse.

Disturbance of temperature either upwards or downwards may be due to a great number of abnormal conditions. The temperature is always depressed by any very considerable loss of blood, by starvation or

prolonged abstinence from food, and from various chronic diseases attended by general wasting, such for example as cancer of the stomach. In the stage of collapse which attends many fevers, and especially cholera, the temperature may be depressed to a very marked degree, and may even fall as low as 89° . In the collapse of alcoholic intoxication the temperature has been known to fall even as low as 71° .

The temperature is elevated in all diseases attended with inflammation and in all fevers. In these cases there is not only an increased production of heat, but a disorganisation of the controlling apparatus which in health acts as a kind of safety-valve.

The following terms which are frequently employed in medical works in connection with abnormalities of temperature require explanation. The temperatures are given on the Fahrenheit scale, but the corresponding temperature on the Centigrade scale is added in brackets.

A. TEMPERATURES BELOW THE NORMAL:—

1. *Temperature of Collapse*, anything below 97° F. (36.2° C.).
2. *Subnormal temperatures* between 97° F. (36.2° C.) and 98° F. (36.7° C.).

B. NORMAL TEMPERATURE, anything between 98° F. (36.7° C.) and 99.5° F. (37.5° C.).

C. TEMPERATURES ABOVE THE NORMAL:—

1. *Subfebrile temperature*, anything between 99.5° F. (37.5° C.) and 100.5° F. (38.05° C.).
2. *Moderate Fever*, anything between 102.2° F. (39° C.) and 103° F. (39.44° C.).
3. *High Fever*, anything between 105° F. (40.6° C.) and 106° F. (41.1° C.).
4. *Hyperpyrexia*, anything over 105.8° F. (41° C.).

To convert Fahrenheit into Centigrade, deduct 32, multiply by 5, and divide by 9.

To convert Centigrade into Fahrenheit, multiply by 9, divide by 5, and add 32.

Hyperpyrexia sometimes sets in during the course of rheumatic fever, and if not promptly treated by wet packs, cold baths, and similar measures, usually proves fatal in a few hours.

In some cases of injury to the brain and spinal cord, resulting from falls and accidents, very high temperatures are sometimes noticed; 110° and 111° F. having been several times recorded.

In cases of lock-jaw the thermometer sometimes reaches 112° F., and the temperature continues to rise for some hours after death. Hysterical women not infrequently present curious abnormalities of temperature, but these are often fraudulent, and are in many cases produced by rubbing the bulb between a fold in the sheets, or by slyly bringing it in contact with a hot-water bottle. No temperature can be considered a "record" unless taken by a thoroughly trained and skilled observer, and under circumstances absolutely free from any taint of suspicion.

The thermometer is of the utmost value as a guide to diagnosis. By its use we are enabled, by a single observation, to distinguish between diseases the symptoms of which are so similar that without its aid our skill would be baffled, and our treatment of necessity postponed. In the diagnosis of typhoid fever the thermometer is all-important. Hear what the Queen's physician says on this subject:—"There is a form of typhoid fever," he says, "with which we are all familiar, that has been termed latent typhoid fever—a form in which the patient is from the commencement to the termination of the disease able to walk about, and even to follow his ordinary occupations. This is a form of the disease in which the patient not very infrequently dies from perforation of his bowel, or from intestinal hæmorrhage, even though, as is usual, the evidences of bowel irritation have been trifling. The diagnosis of this practically important variety of typhoid fever is often all but impossible without the use of the thermometer; with its aid it is comparatively, and it may be absolutely, easy. The thermometer, in this case, enables the practitioner not only to satisfy himself, but also to satisfy the patient and his friends that he is really ill, that he is the subject of fever, not merely out of sorts—poorly. Accuracy in our diagnosis in this class of cases is all-important, for by it we are led to avoid the treatment which some of the symptoms may seem to demand—treatment which perchance might lead, as it often has led, to a fatal result; while, by the ocular demonstration of the existence of the fever which we can give to the patient, we can induce him to take those hygienic precautions so important for his safe passage through the ailment. How often have we all known in times past a drastic purge—administered by the physician to remove the disordered secretions, and injudicious diet taken by the patient to remove the weakness—lead to death!"

In some cases it would be absolutely impossible to distinguish between pleurisy and mere muscular pain in the side without the thermometer; the importance of making the diagnosis is self-evident. A young man comes complaining of darting pain in the side which suddenly seized him

a few days ago, and "catches" him whenever he gives a cough or takes a breath. His face wears an expression of illness, and his pulse is quick and feeble. He cannot sleep at night, and has, he says, quite gone off his appetite. He has had a little cough all the winter, but does not spit much. It is impossible to learn anything from an examination of his chest, for he is very tender, and the pain is so great that he cannot take a deep breath. Is this pleurisy?—or only muscular pain, pleurodynia? The symptoms are readily explicable on either supposition. The pain is in itself sufficient to have caused the sleeplessness, and the want of sleep may have impaired the appetite and given rise to the other general symptoms. The cough may be nothing more than a common cold, and the condition of the pulse may be due to the pain, or may be the result of nervousness. How is the diagnosis to be made? By taking the temperature. If the patient is suffering from pleurisy the temperature will be 101° F. or more, and if from pleurodynia it will be normal.

Cases of hysteria are frequently met with, which so closely simulate other diseases that without the help of the thermometer a diagnosis would have to be postponed. The facilities which it affords for the detection of feigned disease are great. The thermometer will often indicate the occurrence of some complication in the course of a disease which might otherwise have passed unobserved until too late for treatment. It should not, however, be trusted too implicitly for this purpose, for serious complications may occur without any indication from the course of the temperature. The return of the temperature to the normal is an indication of the termination of the illness and the commencement of convalescence.

Many fevers have typical ranges of temperature, so that an inspection of the temperature sheet may, if the disease conform to its type, enable the physician, without ever seeing the patient, to say what is the matter with him. Valuable as is the knowledge gained by the use of the thermometer, it must be remembered that the temperature is but one of a number of symptoms which together constitute the disease, and that the information thus obtained by no means justifies him in disregarding other methods of examination.

In some cases the temperature is the only true guide to the progress of the complaint. A patient comes to us suffering from ague. Under the influence of quinine the symptoms in a few days entirely disappear, and the patient is convinced that he is perfectly well, and is anxious to resume his employment. By the use of the thermometer we find that the temperature rises periodically, and reaches a point equal

to that attained when the fits occurred in all their severity. We thus ascertain the necessity for keeping the patient still longer under treatment, and are enabled to prevent him from taking a step which would inevitably produce a relapse.

This dissociation of the other symptoms from the disease whilst the elevation of temperature still continues is not infrequently observed in cases of ague. In many diseases the persistence of a temperature slightly above the normal, after the apparent establishment of convalescence, is the only sign of an incomplete recovery, or of the existence of some later or hitherto unsuspected mischief.

The temperature typical of a disease may be altered by an attack of bleeding, by constipation, or other similar causes, but such disturbing processes are usually of short duration, and the course of the disease in a few hours resumes its normal character. A marked or permanent alteration in the range of temperature often affords the earliest indication of the existence of some complication, of the extension of the disease, or of the lighting up of mischief in some previously unaffected region. The daily fluctuations in the temperature are much greater in disease than in health, a variation of from eight to ten degrees in the twenty-four hours being not uncommonly met with in some acute illnesses.

We have seen that the normal temperature of the body is 98.4° , but varies somewhat in different individuals and under the diverse circumstances in which we are placed. This variation is never very great practically, as shown by frequently taking the temperature in healthy people; it does not amount to more than between two and three degrees. Any elevation above 99.5° F., or any fall below 97° , must, except under exceptional circumstances, be regarded with considerable suspicion, if not absolutely as a sign of ill-health. At the same time it must be admitted that there are persons, both children and adults, who occasionally, whilst exhibiting all other conditions of perfect health, have a temperature as low as 96° F. Although any departure from that range of temperature which we have agreed to be the normal range of temperature is to be taken as an indication of disease, however slight, the converse proposition is not true. A normal temperature is no indication of the freedom of the patient from disease—in fact in the majority of chronic illnesses there is no elevation of temperature. Whenever the temperature reaches 100° F. the patient is ill, and if it is persistent he should obtain medical advice. The temperature runs up much more readily, and from a slighter cause, in children than in adults. Diarrhoea or stomach disturbance will send the temperature

of a child up two or three degrees, and this may be perfectly transitory; nevertheless, such cases should be carefully watched, for it may indicate the onset of some acute disease.

In the great majority of febrile diseases, the temperature does not rise above 106° F. It has been laid down as a rule that in fever a temperature of 108° F. is incompatible with life, even for a day; but this, like most rules, has its exceptions. Very low temperatures are occasionally met with in cholera and some other diseases. Loss of blood, whether it be from the nose, lungs, stomach, or womb, reduces the temperature in direct proportion to the quantity lost. The loss of blood in ordinary bleeding from the nose is seldom sufficiently great to exert any very marked influence on the temperature. Spitting of blood in consumption may, if profuse, be followed by a distinct fall of temperature. In cases in which the bleeding is slight, there may be no depression, but on the contrary, the blood, by increasing the mischief in the lung, may elevate the temperature.

We have said that elevation of temperature is in itself an indication for the administration of certain remedies. The aconite tabloids (T. 1) will be found most useful in reducing fever. They are especially indicated when there is any suspicion of the existence of inflammation. One should be given every ten minutes for the first hour, and then hourly for five or six hours. Another useful medicine is the solution of acetate of ammonia—a tablespoonful in a wineglass of water every four hours. It is a great thing to have the bowels well opened, and to get the skin to act.

THE PULSE.—Physicians in all ages have very properly attached considerable importance to the rate and force at which the circulation is carried on. As a measure of these conditions, appeal is usually made to the pulse as felt by the finger placed over the artery of the wrist. The pulse may be examined in any part where an artery is so close to the surface that its throb can be plainly felt, but in general the most convenient locality is at the wrist. In feeling the pulse you must be very careful not to flurry your patient, or you will quicken the action of the heart, and render your observation valueless. You should see that there is no pressure on the artery in any part of its course by tight sleeves or other article of dress. By throwing the shoulders well back it is possible to stop the pulse at the wrist. Malingerers sometimes manage to deceive the doctor in this manner.

The usual way of feeling the pulse is to place the three fingers just

above the root of the thumb and the joint of the wrist, with your thumb on the opposite side so as to regulate the pressure. Its frequency may be measured by the seconds hand of a watch, but considerable practice is required to detect and appreciate its peculiar characteristics as indicative of various phases of disease: its rhythm, its fulness or softness—whether it is strong and bounding, forcing the fingers almost from the arm; or hard, small, and wiry, like the vibrations of a string; or intermittent, striking a few beats, and then apparently stopping one or two beats; or whether the pulsations, flowing into each other, are small and almost imperceptible. The information obtained by examining the pulse is often of the most interesting and instructive kind.

It is necessary that we should know the number of beats which the heart habitually makes in health, for it varies much in different people. The average number of pulsations in a healthy adult is from 70 to 75 in a minute; but there are persons who when they are quite well have always a pulse of 80 or 90, and there are others in whom the pulse seldom rises above 60. The pulse beats about 8 in the minute faster in the adult female than in the adult male of the same age. The pulse-rate varies considerably at different ages. The average number of beats in the minute is as follows:—At birth, 140; during infancy, 120 to 130; in childhood, 100; in youth, 90; in adult age, 75; in old age, 65 to 70. In decrepitude, it is said that the pulse once more increases in frequency. The rate of the pulse is usually quicker in the standing than in the sitting posture, and in the sitting than in the recumbent. In the erect posture the pulse beats at some ten a minute in the male and seven a minute in the female over the sitting rate, and about five more over the rate of the recumbent position. It is normally faster in the female than in the male, by from six to fourteen beats, but this difference is not noticeable in young children. It is quickened by exertion or excitement. Mental exertion in nervous people sends up the pulse-rate very considerably, a circumstance always taken into consideration by doctors in examining patients. It is quickened by meals, and while varying thus from time to time during the day is, on the whole, quicker in the evening than in the early morning. It is said to be, on the whole, quicker in summer than in winter. Even independently of muscular exertion, it is quickened by great altitudes.

In disease the pulse may acquire a degree of frequency scarcely calculable to the touch—a rate of from 150 to 200 being in some cases recorded. A rapid pulse, if strong, full, and hard, indicates inflammation or fever; but if small and very rapid, it points to a state of great debility.

such as is often present in the last stage of typhoid and other fevers. On the other hand, in apoplexy sometimes, or when fainting is impending, or in certain affections of the heart, the pulse may be very slow. In jaundice, too, the pulse is sometimes slower than normal.

Irregularity of the pulse is a condition which, as a rule, is full of meaning and interest. This condition is curiously enough natural to some people, and when they get ill with fever the pulse sometimes becomes quite regular. Irregularity of the pulse may be dependent on a number of very different conditions; it may be caused by disease within the head, or by disease of the heart, or it may be the result of simple disorder of the stomach, or of general debility. Do not think because your pulse is somewhat irregular that you are going to die. Have you been smoking much lately? Well, that is quite enough to account for it. And we don't suppose that that final glass of cold whiskey and water last night did you any good.

Then a pulse may be intermittent. When the motions of the artery are unequal in number and force, a few beats being from time to time more rapid and feeble than the rest, we say the pulse is irregular, but when from time to time a pulsation is entirely left out, we say the pulse is intermittent. Frequently the intermission is perfectly regular, a pulsation being missing every fourth, or tenth, or twentieth beat; but sometimes we have, say ten or twenty beats, then an intermission, and very soon another. When the intermissions are frequent—*i.e.*, every four or six beats—they are more likely to be regular. Intermittency of the pulse may be due to many diseases, but it is not always of grave importance, for very trivial causes may produce it. It is rare in young people, but after middle age is not at all uncommon. In some cases it is habitual, in others occasional only, and induced by indigestion, constipation, smoking, drinking, etc. In some people it is produced by particular kinds of tea, and in others by a particular brand of cigars. Some people are entirely unconscious of the intermissions, especially those in whom it is habitual, others feel as if the heart rolled over or stopped, and are made uncomfortable.

A jerking pulse, marked by a quick and rather forcible beat, followed by a sudden abrupt cessation, as if the direction of the wave of blood had been reversed, is sometimes a concomitant of heart disease, but it occurs in the course of many other complaints. It should be regarded as an indication for obtaining medical advice, for a simple examination of the chest may serve to dispel your fears.

Another important quality of the pulse is what is called its hardness

or incompressibility. You find that you can scarcely abolish the pulsation by any degree of pressure; the blood still forces its way through the artery beneath your finger. Sometimes it is felt to strike a large portion also of the finger, and then we say that the pulse is full or large as well as hard. When it strikes a very narrow portion of the surface of the finger, it is compared to a thread, it is a small pulse; and if at the same time it be hard, such a pulse is often described as a wiry pulse. A full pulse occurs in people who are plethoric, and also in the early stages of acute disease. A weak pulse denotes impoverished blood and an enfeebled condition of the system.

In fever the pulse is usually increased in frequency, there being, roughly speaking, a rise of ten beats in the minute for an elevation of a degree in the patient's temperature. Thus, if the natural pulse and temperature were respectively 75 beats in the minute, and 98·4° Fahr., an elevation of the temperature to 100° would probably bring up the pulse to 90 or 95. As we have already shown, the pulse is so prone to disturbance from trivial causes as to render it unreliable as an indication of the existence of fever. Excitement will, in children especially, frequently quicken the pulse by twenty or thirty beats per minute. The mere act of counting the pulse may in itself act as a disturbing element. The slightest movement, even turning in bed, will, in debilitated subjects, increase the rapidity of the circulation, and mere weakness will quicken the pulse-rate, there being nothing in the pulse itself to indicate that the acceleration is not the result of fever. Many nervous, highly-susceptible people have a certain amount of voluntary power over the pulse, and by directing the attention to it can alter its rate. Not only is a rapid pulse not of necessity an indication of fever, but a normal pulse affords no evidence of the non-existence of an elevated temperature. In many fevers, more especially typhoid, the pulse may be normal, or even below the normal, during the whole of the illness. For the detection of fever we would strongly urge upon you the necessity for using the thermometer.

THE TONGUE.—An examination of this organ may afford important information in the diagnosis and treatment of disease. It almost seems to have been designed as an index by which to estimate the condition of the system, so numerous and diversified are the morbid affections which modify its healthy appearance. It not only participates in all general derangements of the system, serving as a safe guide to a correct judgment in relation to the degree, progress, and precise stage of the

disease, but it especially sympathises with the different parts of the digestive tract, at one extremity of which it is placed.

The bulk of the tongue may be increased or diminished. Its enlargement, when not so considerable as to be very obvious, may often be detected by the appearance of indentations on its sides made by the pressure of the teeth. Its contraction, when not the mere effect of dryness, is usually the result of a diminished supply of blood, and indicates either a general deficiency of that fluid or great feebleness of the heart's action. Like every other part naturally moist, it shrinks by drying and exposure to the air, and under such circumstances no general inference can be deduced from its mere loss of volume.

Its colour may be greatly and significantly modified. Undue redness of the tongue is often supposed to be the sign of irritation of the stomach. Such, however, is not always the case, for this condition is often met with when there is no other evidence of stomach derangement, and it is not infrequently absent when some disorder undoubtedly exists. A livid or purple colour of the tongue is usually dependent on deficient aëration of the blood, and may be regarded as a valuable indication of the existence of this condition, in connection with the same colour in the lips. Sometimes the tongue is unhealthily pale, and this is a sign of poorness of blood, or of great prostration or debility.

The "strawberry" tongue of scarlet fever is so characteristic that it is in itself sufficient to enable one to recognise the existence of the disease.

The condition of the tongue as to dryness and moisture is often worthy of attention. But caution is necessary not to mistake dryness, arising from temporary and unimportant causes, for that due to general disease. In persons who habitually sleep with their mouths open, the tongue is apt to be dry in the morning; and the same cause often produces the same effect in sickness. On visiting a patient we find the tongue unexpectedly dry, and begin to feel some apprehension until we learn that the patient has been breathing for some time through the mouth alone. A blocking up of the nostrils often gives rise to this phenomenon. In all doubtful cases, all that is necessary is to request the patient to close his mouth and then move the tongue about, so as to moisten it. If he succeeds satisfactorily, we may be sure that the dryness was accidental, and of no account. Another caution is requisite—to take care, namely, that a really dry tongue is not mistaken for a moist one, in consequence of the patient having recently taken liquid into his

mouth. Dryness may exist in different degrees, from mere clamminess to perfect acidity. It depends on a deficiency of saliva, and indicates a general tendency to diminished secretion. In typhoid fever the tongue often becomes quite dry, and assumes a brownish colour.

The condition known as a furred tongue is one of the most important symptoms afforded by this organ. In this state the upper surface of the tongue is covered with an unhealthy coating, which adheres with the greatest firmness. Though very generally a sign of disordered health, it is not always so, for some people have habitually a furred tongue, especially on rising in the morning. A furred tongue is very common in the case of people who smoke much. This condition always accompanies fever, and is a decided characteristic of that affection. At the same time it must be remembered that for the detection of fever we put our trust in the thermometer, the state of the tongue being of minor importance. When the fur is white, thickish, and tolerably uniform and moist, it usually indicates an open, active state of the fever, in which, though the obvious symptoms may possibly be violent, there is little probability of any lurking mischief, or of a malignant tendency. A yellowish hue of the fur is commonly indicative of disordered liver. A brown or black tongue is a bad sign, usually indicating a low state of the system, and a general condition of depression. Malingerers sometimes manage to simulate the condition by chewing liquorice, tobacco, burnt coffee-grains, etc.

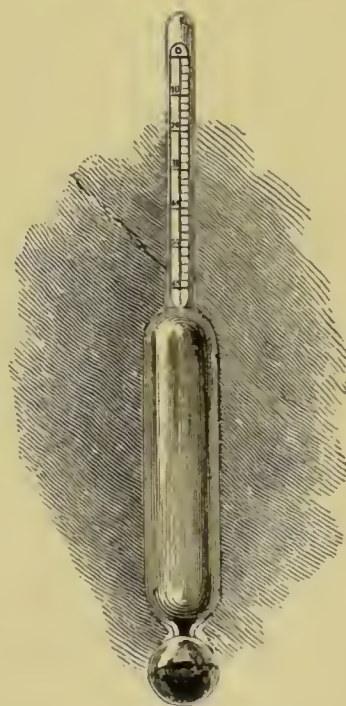
The manner in which the fur takes its departure is worth observing. When it slowly recedes from the tip and edges, thinning gradually as it retires, it intimates a favourable convalescence. A portion of fur often lingers near the root of the tongue, long after the disease has given way. Sometimes the fur loosens and separates in flakes, often beginning at the middle or near the root, and sometimes in large patches, or over almost the whole tongue at once, leaving a smooth red surface. In these cases, if the tongue remains moist, convalescence almost always takes place, though it is usually tedious—sometimes very lingering. In less favourable cases, the tongue, after having commenced the process of cleaning, as first described, or even after completing it, instead of continuing moist, becomes quite dry, with an aggravation of the symptoms and increased danger. This is a very unfavourable condition, more especially when, in addition to its dryness, the surface becomes gashed or fissured, or exhibits a rough scaly appearance.

A smooth, red, glossy tongue, either moist or dry, is not uncommon in chronic diseases, and is generally regarded as a bad sign.

In some diseases the manner in which the organ is protruded may serve to indicate the nature of the complaint. Take St. Vitus's dance, for example. If you ask the patient to put out his tongue, he makes sundry attempts to do so before he can accomplish it, and then the tongue is suddenly thrust out and as suddenly withdrawn, and the jaws snap together as if he were resolved that you should have as short a glimpse of it as possible. In delirium tremens the tongue is protruded with a jerk very similar to that we have just described. It almost always trembles; usually it is covered with a yellowish fur, but it may be clean, red, and glassy on the one hand; or brown, dry, and cracked on the other.

THE URINE.—Healthy urine is a clear, watery, amber-coloured fluid, having a faint peculiar odour which is familiar enough to everybody. Certain drugs, such as turpentine and copaiva, and certain articles of food, such as asparagus and garlic, communicate special odours to the urine which are readily recognisable. The urine in diabetes when fresh has a faint whey-like fragrance, and when fermenting it smells like sour milk. Certain medicinal substances, when administered internally, produce peculiar alterations in the colour of the urine. Thus, when rhubarb is taken it colours the urine a deep gamboge-yellow, which on the addition of a little hartshorn is at once changed to red. Senna communicates a brownish, and logwood a reddish tint to the urine, and santolin imparts a conspicuous orange-red colour if it be alkaline, and a rich golden-yellow if it be acid. Creasote, and the external application of tar ointment, produce a very dark, almost black urine, and the same effect is noticed when carbolic acid is used as a dressing in surgical operations.

In many cases it is very important to learn the density or specific gravity of the urine. This fact is ascertained by means of a little instrument called the urinometer. If you take a tumblerful of ordinary drinking-water, and immerse the urinometer in it with the bulb downwards, you will find that it will sink to the point marked 0, and this is called 1,000. Now if you substitute for water the urine of a healthy person you will find that the urinometer will not sink so far, and



URINOMETER.

will probably float at some point between 15 and 25. This shows that urine, like blood, is denser or thicker than water. Supposing the urinometer had come to rest at the point marked 20, we should say that the specific gravity of that urine was 1,020, the specific gravity of water being 1,000. In taking the specific gravity of the urine or any other fluid you must take care that the instrument floats quite freely, and does not touch the sides or bottom of the vessel anywhere. You should also see that bubbles have not collected round the stem of the urinometer, for they are apt to buoy it up, and make the urine appear denser than it really is. You should never take the specific gravity of a urine directly it has been passed, but wait till it is cool, or a material error may be introduced. The best way is to collect all the urine passed in twenty-four hours, and to take the specific gravity of a portion of this. That is the only way to get a really correct reading.

The specific gravity of healthy urine, as we have seen, ranges from 1,015 to 1,025, but frequently it occasionally exceeds these limits. If you take a copious draught of water on an empty stomach you will find that it will very quickly run through you, and that your urine will, for the time, be profuse in quantity, clear, and almost as dilute as water. On the other hand, prolonged fasting and abstinence from fluid will cause the urine to become concentrated, and of a higher specific gravity. These are facts which must be familiar to every one. If, however, your urine exhibits habitually, and especially in the morning before breakfast, when it ought to be concentrated, a specific gravity below 1,015, it looks suspicious. It may mean nothing, but it is suspicious. Do not be satisfied with a single examination, but take the specific gravity on several occasions at some days' interval. Do not forget that the observation is not to be made when the urine is warm. If you are quite sure that the specific gravity of your urine is habitually below 1,015 the first thing in the morning, you had better have it examined. It may mean nothing, it probably does mean nothing, but still you had better have it seen to, to make quite sure. It is about ten to one that your doctor will be able to give you a clean bill of health, or at all events put you on your legs again without much trouble. Hysterical women often pass a great deal of pale-coloured water of very low specific gravity. We are not referring to those cases, for in them the urine is very rarely affected. Then again, if the specific gravity of your urine is not too low, perhaps it is too high. A density of 1,030, especially in a pale, apparently diluted urine, is also suspicious, and if the specific gravity of your urine is 1,040 or 1,050, all we can say is, we don't like the look of it. Mind, we are not speaking

of the specific gravity of a single specimen of urine—that is of not the slightest consequence—but of the specific gravity of a sample of all the urine you pass in the twenty-four hours. And above all you are not to jump to a conclusion; it may vary from day to day, and you will want several careful observations before you can be sure of your facts. If you have positively come to the conclusion that the specific gravity of your urine is habitually above 1,030, you had better state your case before the doctor, and get it set to rights again. If you are in health, you, of course, will not bother about the specific gravity of your urine, for if anything goes wrong with it, you will probably find it out in some other way. But if you really think there is something wrong with the urine, you may derive some most useful information from the urinometer, especially if you are so situated that you cannot personally consult a medical man. We should strongly advise you not to meddle with your urine, but when occasion offers to send it straight off in a bottle to the doctor, with a plain, straightforward statement of your case. You had better let the doctor have two bottles of urine, one of the morning's urine, and the other of the evening. Do not send too small a quantity; he will want at least half a pint to examine it properly.

The more urine you pass, speaking generally, the lower density it is; that is only natural. The usual quantity is from two to two and a half pints in the twenty-four hours. Some people pass very much more than others. When speaking of the disease called diabetes insipidus, we have mentioned a man who was in the habit of passing a very large quantity, indeed as much as would fill an ordinary-sized slop-pail. The amount of water you pass is to some extent regulated by the fluid you drink. Gin has the property of greatly increasing the flow of the urine. Shakespeare refers to this in *Romeo and Juliet*. Then again the amount of perspiration is not without its influence on the urine. You pass less water in summer than you do in winter, but you take it out in perspiration. It comes to the same thing in the long run.

Next, a word or two as to the reaction of urine. This is ascertained by means of test-papers. A doctor generally carries some about with him, in his pocket-book. They are made by dipping ordinary paper into litmus, and they are often called litmus paper. There are two kinds, red and blue. The blue is turned red by an acid, and the red is turned blue by an alkali. If you take a piece of blue litmus paper, and put it into vinegar and water, it turns red, and if you take a piece of red litmus paper, and put it into weak soda-and-water, it turns blue.

Vinegar is an acid, and soda is an alkali. Ordinary healthy urine, when freshly passed, is acid, but after it has been standing for some time it undergoes putrefactive changes—that is, it goes bad—and then it becomes alkaline. If you want to ascertain the reaction of a person's urine, you must test it soon—an hour or two after it has been passed, and not after it has been standing about all day. When urine is passed in a dirty vessel, it soon becomes offensive. There is nothing like washing out the utensil occasionally with a little strong acid if you want to keep things sweet and clean. Many people never think about that. They are very particular about everything that is seen, but as the chamber utensil is generally kept concealed or out of the way, they totally ignore its claims. It may seem a very trivial matter, but it is just one of those little things that the doctor notices. He cannot very well mention it, but he appreciates it if you pay attention to it. It just makes all the difference between things working smoothly and going all wrong. Perhaps he is about to make a diagnosis on the fact that the urine is alkaline, when suddenly it dawns upon him that possibly it was a dirty utensil that had been used, and he realises what importance an apparently trivial circumstance may exercise on a question of life and death.

Both mineral and vegetable acids, when taken largely, tend to raise the acidity of the urine, but their effect is inconsiderable. Urine that is habitually alkaline cannot be rendered acid by the internal administration of acids in even very large quantities. Benzoic acid is probably the most powerful acidifier of the urine that we have, but carbonic acid gas taken in the form of soda water has been found useful for this purpose. Alkaline substances have a much more powerful influence on the reaction of the urine, and you can deprive your urine of its acid reaction, and render it alkaline at pleasure. Bicarbonate of potash and bicarbonate of soda will do this for it. This is often a matter of importance to people who suffer from gravel.

Urine on standing often throws down a pinkish deposit. You may often find it at the bottom of your chamber, especially on a cold winter morning. If you empty some of your hot shaving water into it, you will find that it will quickly disappear, and the same will happen if you put it before the fire, supposing that you are Sybaritic enough to have one in your bed-room. This deposit consists of what is known as urates or lithates. If you took the trouble to examine it under the microscope—which you will not—you would find that it was quite structureless, not crystalline, or anything of that kind. The deposit in

the urine of lithates is no sign of kidney disease, but its frequent occurrence is to be regarded as an indication of liver disorder, arising from causes sometimes temporary, at others more or less permanent. Persons who enjoy the best of health are liable to deposits of lithates in the urine after a surfeit of food, or even after partaking moderately of one of the fashionable dinners of the age. When more food is taken into the system than is necessary for the maintenance of nutrition, much of the excess is thrown off by the kidneys, and appears in the urine in the form of lithates. But what in most people is an exceptional occurrence, the result of an extraordinary cause, is with others habitual, and almost a daily occurrence. They either eat too much, the food being excessive in amount and unduly stimulating, or there is some innate power, perhaps hereditary, in the liver, in virtue of which its healthy action is liable to be deranged by the most ordinary articles of diet. Lithates in the urine are most likely to occur in people who live generously, take little exercise in the open air, and do a fair share of mental work. This condition is often associated with a feeling of weight or fulness at the pit of the stomach or over the liver; an excessive formation of wind in the stomach and bowels; heartburn and acid eructations; a feeling of oppression, and often of weariness and aching pains in the limbs, or of insurmountable sleepiness after meals, and a furred tongue, and a clammy, bitter, or metallic taste in the mouth, especially in the morning. All these symptoms are liable to occasional aggravation from errors in diet. Gradually the patient finds that he has to be very careful as to what he eats and drinks. One thing after another he is compelled to give up. First he renounces malt liquors, then he discovers that port, madeira, champagne, and burgundy disagree, and he takes to dry sherry; but at length this does not suit, and after an interval, during which a trial is made of claret or hock, and brandy or whiskey largely diluted with water, the patient finds that he enjoys best health when he abstains altogether from alcohol, and drinks nothing but plain water. He probably undergoes a somewhat similar experience with regard to solid food, one dish after another being abandoned, until, at last, if he be a sensible fellow, he makes up his mind to live plainly, and eschew the so-called pleasures of the table. As a rule, those articles of diet are most apt to disagree which contain much sugar or fatty matter. Generally, the digestion appears to be strongest in the morning, and the patient suffers from late dinners or suppers. So much for lithates in the urine. It is a condition of extremely common occurrence in this country, especially

among the well-to-do, who can afford to eat more than is good for them.

Sometimes you get blood in the urine, but that is not very common. Of course when you do get it it is a serious matter, especially when there is much of it. Sometimes there is so much that it clots spontaneously, straight off, and sometimes there is so little that it requires a high power of the microscope, and no end of a lot of learning to detect it at all. You must not think because there is not much of it that it does not matter. Even if it wants a microscope to see it it is a bad business. Nobody should get blood in his urine if he can help it. Of course if you have just had an instrument passed on you, or anything of that kind, it is quite another matter, and you must expect a little bleeding. But when the blood comes by itself, without any rhyme or reason, it is time to go to the doctor and ask him what he thinks of it. It may be due to many things—a stone in the bladder will produce it, and so will an injury of any kind. Sometimes it occurs in the course of certain constitutional diseases, such as scurvy, purpura, and so on. They do say that mental emotion will produce it, but we have never seen that. It probably wants a good deal of it. It may be vicarious of other discharges; that is quite possible. You have had piles for a good many years, and have been in the habit of losing more or less blood from them every day. By-and-by you get hold of some clever young fellow who says he would like to cure your piles for you. You say, "Very well, go ahead," and sure enough he cures them, but—there is always a but in these cases—you have no sooner got rid of the bleeding piles than you find there is blood in your urine. You go back to him and tell him, but he says it is no business of his, he is a specialist, a pure pile doctor, and if you want to have your urine set right you will have to go to another man, to whom he will be very happy to give you an introduction.

There is one little point in connection with blood in the urine that we ought not to pass by without mentioning, and that is that in women at the menstrual period blood may accidentally become mixed with the urine. It is, of course, of no importance, although if one did not happen to think about it it might give rise to a good deal of anxiety. Blood in the urine, as we have already said, is no joke, but at the same time it is no good worrying about it, and the only thing is to go to a surgeon and tell him that you expect him to make it all right for you. But if the bleeding comes on suddenly, or in large quantities, what are you to do? Well, of course, you must not bleed to death, although really there is very little danger of that. Still it is a thing to be avoided. You had

better lie down and get them to undo your things—the less you do yourself the better—and clap a towel, wrung out of cold water, on the lower part of the belly. If you can get some ice, do, and rub it well all round the part. If there is any astringent at hand, take it. Hazeline, gallic acid (Pr. 29), tannic acid, acetate of lead (Pr. 30), alum, tincture of hamamelis virginica (Pr. 45), turpentine, small doses of ipecacuanha wine (Pr. 50), or anything of that kind will do excellently well. If you can get nothing else, a little vinegar-and-water, or salt-and-water, is better than nothing. Do not worry yourself; you will not hurt. You had better send for the doctor, and then he will find out where the blood comes from, and all about it. Do not let them persuade you to take any hot brandy-and-water, or anything of that kind, to keep you from fainting. If you want to faint, faint by all means—it will stop the bleeding; but you are not to have alcohol in any shape or form, on any pretence whatever, for it will only bring on the bleeding worse. If you were never a teetotaler before, you will have to be now.

Then sometimes you get albumin in your urine. That is another bad business. When there is blood in the urine there is always albumin, because blood contains albumin. You can't get blood without albumin, but you may have albumin without blood. Albumin is the same substance as white of egg. White of egg is composed of albumin. To distinguish between white of egg and the substance of which it is composed, the former is spelt *albumen* and the latter *albumin*. Albumin in urine does not make any difference in its appearance. You must remember that white of egg before it is cooked is a clear glairy fluid, and you might mix almost any amount of it with urine without causing any alteration that you could detect by looking at it. If you have albumin in your urine, you probably won't find it out for yourself. Your doctor will do that for you. If the specific gravity of your urine is habitually below 1.015, it is not at all improbable that you have albumin in your urine. Albumin is present in the urine in Bright's disease, both in the acute and chronic forms of that affection. We will not give the tests for albumin now, but will reserve them till we speak of that complaint. The treatment of albumin in the urine must be guided by the complaint on which it is dependent.

Sugar is sometimes found in the urine, and it constitutes one of the symptoms of the disease known as diabetes mellitus, or sugary diabetes. There are two kinds of diabetes, sugary diabetes and insipid diabetes; in the latter complaint the quantity of urine is usually very great and of low specific gravity, but it contains no sugar. The presence of sugar in

the urine is not to be taken as proof-positive that the patient is suffering from diabetes. It may be only a temporary condition due to taking excessive quantities of some particular article of food, or to some similar cause. Sugar has been occasionally noticed in the urine after the patient has taken chloroform for a surgical operation. To this transitory condition we do not apply the term diabetes, but speak of it as an example of glycosuria, a term derived from the Greek words *γλυκός*, sweet, and *ουρον*, urine.

Spermatozoa are occasionally found in the urine. They are of course microscopical. They are never seen in motion in the urine. This is a positive fact. If you are ever stupid enough to fall into the clutches of a quack, and he tries to frighten you by pretending to show you living spermatozoa in your urine, tell him that you know better than that. He has probably got them from paste and vinegar, or something of that kind. It is an old trick, but it is still often practised by these scamps with the view of playing upon the fears of their unfortunate victims. If you see any particle in motion in your urine, or in anybody else's urine, you may be sure that they are not spermatozoa, for urine kills them straight off.

Sometimes the urine is passed quite white, just like milk. This constitutes one of the symptoms of the disease known as chyluria, galacturia, or chylous urine. In this country cases are rare, but it prevails epidemically in the West Indies, the Mauritius, and India. The majority of cases met with in Europeans are found among sailors, merchants, colonists, and others who have passed a portion of their lives in one or other of these countries.

PAIN.—This feeling is quite indefinable, and can be known only by those who have felt it. There are many different kinds and degrees of pain. Different kinds of disease are accompanied by different kinds of pain, and the same disease may produce different modifications of pain, according as it affects different parts. Thus the pain that belongs to inflammation of the lungs differs from that which is felt in inflammation of the bowels. Then, again, pain differs not only in its kind and degree, but in its mode of recurrence. Thus it may be fugitive or persistent, wandering or fixed, intermittent or continued. In its different grades it is slight, moderate, severe, violent, intense, excruciating, or agonising. Different epithets are given to the different varieties of pain, persons endeavouring to explain how they feel by likening their sensations to something which they have felt before, or fancy they have felt. Thus

we hear of sharp pain, shooting pain, dull pain, gnawing pain, stinging pain, tearing pain, and so on. When attended with a beating sensation, consequent upon the heart's action, it is called pulsating or throbbing, when attended with a feeling of weight it is described as a heavy pain, and when with heat as a burning pain. If pain be felt in a part only when it is touched it is said to be tender. A part may be both painful and tender, or painful without being tender, or tender without being otherwise painful. There are also peculiar sensations, such as itching, tingling, and pricking, which, in excess, become positively painful, though they might not be considered so in their slighter degrees. We have seen that pain is sometimes wandering or sometimes fixed. Wandering or flying pains are generally nervous or neuralgic in origin, whilst inflammatory pains are commonly fixed; but the distinction is by no means constant.

Pain often is felt not in the part really affected by disease, but in some distant part. Thus inflammation of the liver causes pain in the right shoulder, inflammation of the hip-joint excites pain in the knee, disease of the heart is often attended with pain running down the left arm, and many headaches result from irritation of the stomach. We call this indirect or sympathetic pain.

It may be observed of pain in general that it is differently felt, or at any rate differently complained of, by persons of different constitutions and temperaments. Different people have very different degrees of sensibility, and feel with different degrees of acuteness. Some are but little sensitive to painful impressions of any kind, whilst others suffer intensely from slight causes. There are individuals who say that it hurts them very little to have a tooth out. It has been stated that there are even national differences with respect to the power of bearing pain. In surgical operations, before the introduction of chloroform, it was observed that the Irishman, generally speaking, felt more acutely, and gave freer vent to his feelings in cries and exclamations than the Scotchman, who most commonly preserved a resolute silence.

In judging of the degree of pain in any particular instance, one cannot always be guided by the statement of the sufferer. Very different meanings are often attached to the same words by different individuals, and some have a habit of employing terms of exaggeration for all their feelings. One must be guided more by the tone of voice and expression of countenance than by what is said. If a person tells you with perfectly composed feelings and a calm, equable tone of voice

that he is suffering "excruciating pain," you are justified in estimating its severity greatly below the real value of the term.

In complaints associated with low spirits and hypochondriacal feelings, the pain often depends in a great measure on the eager attention that is paid to it. Accounts given by people who are always ailing must be taken with a grain of allowance. One often meets with people, lazy, selfish, hypochondriacal, always complaining, but never really ill. They take it as an offence if you do not seem to implicitly credit what they say; and yet if you cannot convince them that much of what they suffer depends on their undue attention to it they will never get well. They often cease to feel pain, or, at all events, they forget to think of their complaints when their attention is engaged by conversation, music, or otherwise. Powerful excitement, a loss of income, for instance, or any great mental or moral shock, often does them a world of good. We must admit that nothing short of an earthquake would move some people.

It seems almost paradoxical to say so, but pain is beneficial, and serves a useful and conservative purpose. It is a warning and indication for the necessity of rest, and this fact is now so generally recognised that to the surgical mind the terms "pain" and "rest" are almost synonymous. Let us take an example. A man suddenly strains a tendon or ruptures the fibres of one of his muscles. The first indication of what has taken place is intense pain, pain so acute that he is unable to move the affected part. He must rest, whether he will or not, and the damaged tissues, being to all intents and purposes put into a natural splint, have an opportunity of healing and reuniting. Were it not for the pain of a broken limb many people would postpone having it set, and would allow matters to drift on until the time had passed for surgical treatment to prove of much avail. Again, the pain of an aching tooth sends us flying off to the dentist, who stops the molar, and prevents the loss of a useful member. Neuralgia, too, warns us that we are not taking sufficient care of the general health, and that if we wish to avoid an utter break-down, we must be careful, and not push our frail frame to the utmost limit, and run the risk of inflicting on it permanent injury of its powers.

Many serious forms of disease run their course from beginning to end without the patient experiencing any pain. This is usually the case in cancer of the rectum. By a wonderful provision of nature the rectum is insensitive except at its lowest part near the anal aperture. If this were not the case the dry, hardened fæces which often accumulate in the gut and are retained there for some hours before being

evacuated would give rise to intense discomfort, and make life almost unendurable.

Fortunately, the means at our disposal for the relief of pain are neither few nor uncertain in their action. We can often assuage pain when we cannot cure the disease on which it is dependent—for example, in cancer of the womb or breast. There is no pain more dreadful or more dreaded than that attendant on surgical operations, and yet even that has its specific antidote. By merely breathing for a few minutes an invisible gas, the corporeal sensibility is laid aside, and the knife executes at leisure and unfelt its terrible but salutary work. When we consider what ether, and chloroform, and nitrous oxide have done for us, and what they will do in the future, the vast amount of torturing pain that has been spared to thousands, and the pain that countless generations yet unborn may escape, we cannot help feeling grateful for so merciful a boon conferred on suffering humanity. Then, again, in opium and its active principle, morphine, we have the means of relieving the most agonising pain of disease, and substituting for it a calm and refreshing sleep. Our specific remedies for neuralgia are, as we shall presently see, neither few nor impotent. Every day adds to their number, and to our knowledge of the indication for their administration. A few years ago bromide of strontium, antipyrine, exalgin, and gelsemium, were practically unknown; now we recognise their worth, and are enabled by them promptly to relieve many a case of acutest suffering.

FACIAL EXPRESSION AS AN INDICATION OF ILLNESS.—This often affords valuable information in the treatment of disease, and should be carefully studied by all who have to do with the sick. The power of observing is a great gift. Occasionally, as in cases of insensibility, it affords almost our only means of detecting the nature of illness. By its means we recognise the existence of pain, of mental anxiety, of depression, or even insanity, when other signs are either wanting, obscure, or not available. In the case of children, the demented, and persons who may be disposed to deceive us, it is a peculiarly valuable resource. A doctor nearly always places his patient in a chair facing the window, so that he may watch the play of his features. Many diseases are attended with a characteristic aspect of countenance, which will often be quickly recognised by the experienced, so far at least as to suggest the disease in question. By a glance it is often possible to ascertain whether our patient has changed for the better or worse since the last visit. This power is obtainable only by experience and close observation. To most

doctors it comes almost unconsciously. It is one of the highest forms of tact. The modifications and combination of features which constitute expression in disease can be learnt only at the bedside. They are too numerous, too intricate, too delicate, too subtle, and too evanescent to admit of description.

But there are certain changes in the face of a more tangible character, connected rather with the bodily function than with the action of the mind, which can be readily and accurately appreciated. The colour, shape, and various movements, independent of expression, often yield important information. Walk through a street of a crowded city, and watch the countenances of the people as they hurry by, and you will be surprised to find how much you can learn about them and their complaints, mental and physical. Look at that man with his fat, red, bloated face, and you have no difficulty in recognising *drink*. You know that in course of time he will get liver or kidney disease, and will die of dropsy. Look at the tall, thin, pale girl carrying a big bandbox. See how anæmic she is. You know she is over-worked and badly nourished; you know that hers is a lot of toil, and that a holiday, a day in the country, a glimpse of the bright sunshine, and the fresh fields and flowers, is to her unknown. You know that she is not regular, that her appetite is poor, her bowels confined, and that she often suffers from neuralgia and sick-headache.

Paleness has its significance. It may be due to anæmia, debility, or nausea, and some other conditions. There are different kinds of paleness having different meanings, as the paleness of consumption and that of cancer. Yellowness of the face, or jaundice, as we all know, points to some morbid condition of the liver. A bright red colour of the cheeks signifies one thing, and a dark red, purple, or violet colour another, and often the very reverse. In the former case the blood is duly arterialised by the lungs, and pumped up vigorously into the head by the heart; in the latter, the heart is acting feebly, and the organs of respiration are performing their functions imperfectly. The colour of the lips is peculiarly expressive in its different tints of crimson, purple, and pallor. The features may be full, swollen, and turgid, or they may be shrunken, contracted, and fallen, in the one case indicating congestion, and in the other exhaustion and prostration.

Coldness of the ears and tip of the nose may indicate the approach or presence of a chill, when other symptoms are wanting and ambiguous. In children, coldness of the cheeks, nose, and ears may enable us to decide upon the necessity for administering a stimulant when other

symptoms might leave us in doubt. The flushings of the face from which many middle-aged women suffer are so common as to be familiar enough to most people.

There is one form of facial expression to which much importance is always attached, and that is the "*Facies Hippocratica*." It is so named from having been graphically described by Hippocrates. It may be recognised by the following indications:—A sharp nose, hollow eyes, collapsed temples; the ears cold, contracted, and their lobes turned out; the skin of the forehead rough, distended, and parched; the colour of the whole of the face green, black, livid, or lead coloured. It means death, and is frequently met with in cholera and in cases of prolonged suffering or starvation.

VIII.--MEDICAL DISEASES.

ABSCESSES.—An abscess is usually regarded as a purely surgical affection, but no one willingly submits to the ordeal of having it opened, and really much may be done by appropriate medicinal treatment.

Probably the most generally useful remedy for abscess is sulphide of calcium. When given quite at the commencement it will arrest or prevent the formation of matter. When matter has already formed it diminishes and limits inflammation, and quickly brings the abscess to a head. The judicious administration of this remedy will often relieve us of the disagreeable necessity of having an abscess opened by the lancet. For children who are subject to abscesses about the neck or on the buttocks, sulphide of calcium proves singularly useful. It does admirably, too, for a threatened abscess of the breast. In all these cases one of the sulphide of calcium powders (Pr. 78),* or a tabloid (T. 74), or pill of the same strength (Pr. 68), should be given every two hours for three or four days, or longer if necessary. They will do good, even when the abscess has commenced discharging. Should any difficulty be experienced in inducing a child to take the powders or tabloids, or should they cause vomiting, the dose may be reduced to a half, or a third, or even a sixth; but they should still be given every two hours—at all events, during the day.

In addition, the part should be thickly smeared with a mixture of equal parts of glycerine and extract of belladonna, and over this a good hot linseed-meal poultice should be applied. The poultice should be changed frequently—every two hours if possible—and each time the application of the glycerine and belladonna should be renewed. When a poultice is used to disperse inflammation, or to bring an abscess to a head, it should be large, and should extend beyond the limit of the red and inflamed part; but as soon as the abscess has come to maturity and has burst, the poultice should be but little larger than the opening in the skin, through which the matter is escaping. A large poultice applied over-long soddens and irritates the part, and is very apt to bring out an eruption of little pimples. This mode of treatment rarely

* This and the other references are to the list of Prescriptions and Tabloids which are given together at pages 140 to 150 of this work. “Pr.” indicates Prescription, “T.” Tabloid, and “V.” Vaporole.

fails to do good, and it can under no possible circumstances do any harm.

From the success which attends the external application of belladonna to abscesses it might be supposed that it would do good when given internally, and such is the case. It has been found that taking belladonna will prevent the formation of abscesses in the neck and elsewhere, and that even when matter is present it will check the pain and inflammation. The internal administration will also be found of service for the abscess of the breast which is so common in women who have been obliged suddenly to give up suckling. From five to ten drops of tincture of belladonna or one of the tabloids (T. 10), should be taken in a little water, three or four times a day, the external application of the glycerine and belladonna being continued.

The aconite mixture (Pr. 38 or T. 1) often does good when high fever is a prominent feature. In such cases it may be given alternately with the belladonna or sulphide of calcium.

Phosphate of lime (Pr. 77) succeeds best when there is a large abscess which has been discharging for a considerable time. Painting round the margin of an abscess with tincture of iodine will often limit the inflammation and prevent it from spreading. After an abscess has been opened and its contents have been discharged, healing may be promoted by the application of a calendula lotion made by mixing a tea-spoonful of tincture of the common marigold with three table-spoonfuls of water. It may be applied by saturating a piece of lint, or two or three thicknesses of linen, and covering it with oil-silk to prevent evaporation. The dressing must be renewed two or three times a day.

During the formation and discharge of an abscess the patient should be "fed up." It is a most exhausting process, and plenty of good nourishment is required. The diet should include good strong soup or broth, mutton chops, plenty of milk, and a fair allowance of stimulant, given preferably in the form of port wine. Change of air, with residence by the sea-side, or right out in the country, becomes an important element in the treatment, especially in old-standing cases, or where the discharge has been very great and the health is much depressed.

Further particulars as to the treatment of abscess will be found in the surgical portion of this work.

ACIDITY.—Acidity or heartburn is caused by an excessive secretion of gastric juice in the stomach. It is a form of dyspepsia or indigestion,

and will be found described in detail under the latter of those headings. One of the best remedies for the immediate relief of an attack is sal-volatile. A single dose of half a tea-spoonful should be taken in a wine-glassful of water. Twenty grains of bicarbonate of potash or bicarbonate of soda dissolved in a little water will answer equally well, although sometimes it leads to the formation of a quantity of gas, which causes distress by distending the stomach. The soda-mint tabloids (T. 72) taken after meals are most useful. When the bowels are confined, a twenty-grain dose of magnesia or carbonate of magnesia dissolved in water is preferable. Where there is diarrhœa, a couple of table-spoonfuls of lime-water may be taken, either alone or mixed with an equal quantity of milk. These remedies usually act promptly, and speedily afford relief. They can only be regarded as palliative, for they in no way diminish the tendency to acidity, and in fact rather increase the liability to future attacks. To obtain a radical cure acids must be given before food. Fifteen drops of dilute hydrochloric acid should be taken three times a day, in a wine-glassful of water, half an hour before meals, for a week. When the acidity is associated with loss of appetite, the acid should be combined with a bitter, as in the gentian and acid mixture (Pr. 15). The dose of this is two table-spoonfuls, and it should be taken three times a day, half an hour before meals. It is to be taken as it is, and not mixed with water. Should this fail, relief may often be obtained by taking three of the bismuth tabloids (T. 13) or the bismuth mixture (Pr. 18) in two table-spoonful doses three times a day, half an hour before meals. When the acidity is accompanied by pale-coloured motions, it is an indication that the liver is not properly performing its functions, and one of the sugar and grey powders (Pr. 71) should be taken three times a day.

For the acidity from which pregnant women often suffer the best remedy is two or three drops of tincture of nux-vomica (T. 57) taken in a little water a few minutes before meals. Should this fail, it is somewhat controlled by drop doses of ipecacuanha wine taken every three hours in a little water.

In all cases of acidity it is advisable to avoid any article of food which has been observed to excite an attack.

AGUE OR INTERMITTENT FEVER.—Whoever has read “Robinson Crusoe”—and who has not revelled in its pages?—must have formed some idea as to the nature of ague. The fits are so graphically described,

and the description is so true to nature, that we feel assured that even if Defoe did not himself suffer from the malady, he must have had opportunities of carefully watching its progress. Ague resembles many other diseases in coming on in paroxysms or fits. The patient suffers from a certain series of symptoms, and then reverts to his ordinary condition of health. This alternation may occur several or many times, according to the duration of the attack.

Ague is caused by the entrance into the system of a poison called "malaria." What malaria is, it is not very easy to say. We must pause, however, for a moment, and consider what we know about it. It is nothing we can see or feel, or that the chemist can detect, even by his most subtle tests, and we know of its existence only by the marked effects which it produces on those who are exposed to its influence. It is not simply "bad air"—at all events, in the sense in which we usually use that term. The impure air of London and other large cities is injurious enough to the health, but it never gives rise to ague. Malaria is something quite distinct.

It is commonly met with in the neighbourhood of marshes in hot climates, and is often spoken of as "marsh miasm." It is believed to arise from the decomposition of vegetable matters in moist places, and under high temperatures. It is sometimes met with in sandy soils, but a careful examination will nearly always disclose the fact that there is water and vegetable matter not far from the surface, the moisture being in all probability retained by a bed of clay or some similar cause. It is curious to observe what a small quantity of decomposing vegetable matter is, under favourable circumstances, sufficient to excite ague. A few years ago, at a hospital in Germany, a large day-ward was used for convalescents. As soon as a patient had been in this ward for two or three days he invariably had a bad attack of tertian ague. In no other ward did this occur, and the matter remained a mystery until on close inspection a large rum cask full of rotten leaves and brushwood was found. This had overflowed and formed a stagnant marsh some four or five feet square, close to the doors and windows of the room, which on account of the heat had been left open at night. On its removal the occurrence of ague at once ceased.

Malaria is seldom met with in cold climates, nor in the winter months of more temperate regions. Decomposing vegetable matter is not in itself sufficient to produce malaria, a certain amount of moisture being essential. It is generally believed that in the case of marshes the poisonous emanations proceed from those parts which are only

occasionally covered with water, and then undergo a process of gradual evaporation, and not from those which are more or less completely submerged.

Malaria loves low-lying districts, and in temperate climates seldom ascends above a height of 500 feet. It is always found in the greatest intensity near the ground, but why this is we don't quite know. It may be due to the action of gravity, or it may be that the poison is entangled by the fog, and carried down by it. It is well known that in malarious districts it is much more dangerous to sleep on the ground-floor than in the upper storeys. It has often been found that in barracks the number of soldiers taken ill with ague in the lower apartments is greatly in excess of those who suffer in the upper, and consequently in many places abroad it is customary, if possible, to leave the ground-floor untenanted.

Malaria is capable of being carried by the wind in a manner analogous to that of fogs. This is a matter of no little importance in tropical climates, where the wind frequently blows for days, weeks, or even months together from the same quarter. When malaria exists above its ordinary level, a careful examination will usually show that it has been carried up ravines by means of currents of air, or that it is due to some local cause. Sometimes even the poison has been blown right over a hill, and dropped, so to speak, on the other side. Malaria has been found to act with by far the greatest intensity at night. It may be that it is at these times more copiously evolved, or it may be that at night the system is more susceptible to its influence.

It is a curious though well-established fact that malaria loses its noxious properties by passing over even a small surface of water, particularly if it be salt water. It would seem as if the water dissolved it, and this is in all probability the case, for in India it is a common belief that water over which malaria has passed is quite unfit for drinking purposes, and that when taken into the system it is capable of producing not only ague, but dysentery, and even cholera. Belts of trees exert almost as powerful an influence as sheets of water in arresting the progress of marsh miasm. It is supposed that foliage has a special attraction for malaria, and that it has the power of decomposing it. It is said that woods and groves were first regarded as sacred from the protective powers which they exert from ague, and in many regions settlers live with impunity close to the most pestiferous marshes, provided only that a belt or screen of trees be interposed. Such, then, is the poison which causes ague.

Everyone is susceptible to the action of the poison, and consequently everyone is liable to suffer from ague. Neither the old nor the young can claim exemption from the effects of its pernicious influence, and the malady attacks indifferently children of a few days old and men of threescore and ten. Practically the largest number of cases occur in men in the prime of life, and for the very obvious reason that they, the pioneers of civilisation, are more likely to be exposed to the influence of the poison than are women or old men and children.

Debility greatly favours the action of the exciting cause. On many occasions soldiers have been exposed to the action of malaria without suffering in any way whilst strong and in good health, but have speedily succumbed when weakened by exertion and fatigue, or dispirited by defeat. It must be distinctly understood, however, that no amount of debility or privation would in itself excite ague, and that the presence of the malarial poison is absolutely necessary.

Ague is not very common in England. It is confined almost exclusively to Essex, Cambridgeshire, Norfolk, and Lincolnshire; counties in which there are either marshes or fens or low-lying ground which is occasionally covered with water. The disease is very uncommon in London, and you might go to half the hospitals in the metropolis without seeing a single case. The majority of our cases are fortunately not of home manufacture, but are, so to say, imported. The barges on the Thames occasionally suffer, but even this is quite exceptional. London, however, has not always been so fortunate, and a couple of centuries ago the disease was extremely prevalent in this city. It will be remembered that both James I. and Oliver Cromwell died from tertian ague contracted in the metropolis, and that Sir Walter Raleigh was suffering from the same malady at the time of his execution. In the account of Raleigh's last moments we are told that as the morning was very cold the sheriff said would he come down to a fire for a little space and warm himself. But Sir Walter thanked him, and said no, he would rather it were done at once, for he was ill of fever and ague, and in another quarter of an hour his shaking fit would come upon him if he were still alive, and his enemies might then suppose that he trembled for fear. It is evident that it was to his complaint that he referred when, before laying his head upon the block, he felt the edge of the axe and said that it was a sharp medicine, but would cure the worst disease. Our modern methods of treatment are almost as certain, and far less disagreeable. As regards the prevalence of ague, the Dutch at the present day are not much better off than the English were a couple of

hundred years ago, for the malady is still very prevalent amongst the inhabitants of the low and level coast of Holland. In Italy the Pontine Marshes near Rome have for ages enjoyed an unenviable reputation for the production of malaria.

We must now consider the phenomena which characterise an ordinary fit of ague. It is usually composed of three distinct stages, which are distinguished as the cold, hot, and sweating stages. A person who is about to have an ague fit usually suffers from certain warning or premonitory symptoms, and these ordinarily consist of nausea, languor, lassitude, and pains in the back and legs. Soon he begins to feel chilly, he grows pale, his features shrink, and his skin becomes dry and rough. Gradually the feeling of cold becomes more intense, the sufferer shakes and trembles all over, his limbs are shrunken, his teeth chatter, his hair bristles, his cheeks, lips, ears, and nails get blue, the breathing becomes hurried, the pulse quick and feeble, and the pains in the head, back, and loins are increased. After a time this condition of distress is succeeded by another of quite a different kind. The sensation of cold gradually decreases, and the shrunken condition of the limbs and features disappears. The face then becomes red and turgid, the skin hot, dry, and pungent, the temples throb, the pulse is full and strong, as well as rapid, and the patient is parched with thirst, and is in an extremely restless and uncomfortable condition. At length another change occurs, the skin feels softer and more natural, and gradually a moisture appears on the forehead and face, and this goes on increasing until the patient is in a state of the most profuse perspiration. He is then in a condition of comparative comfort, the pulse soon regains its natural frequency, the pains depart, and after a time the sweating subsides, and the fit is over.

The cold from which the patient suffers in the cold stage of ague is purely subjective; he feels cold, but is not so in reality, and if you put your hand to his skin you will find that it is burning hot. A thermometer placed in the arm-pit usually indicates a temperature of from 105° to 106° Fahr., a temperature as high or higher than we meet with in scarlet fever. And yet at this very time the patient is shivering with cold, often so violently as to shake the bed, and perhaps the whole room. Sometimes the chattering of the teeth has been so violent as to break them, or if loose, to shake them out of the jaw.

Sometimes the fits are incomplete, and the patient suffers from only one or two of its stages. Thus he may shake and yet have no subsequent

heat or sweating, or, on the other hand, the sweating stage may be the only one to manifest itself. We have all heard of the man who was so lazy that he wouldn't shake when he had the ague, and it is to be presumed he suffered from the heat and sweating, without the previous rigors. When the paroxysm begins at once with the hot stage, the complaint is popularly called the "dumb ague," to distinguish it from the more common form, what is called the "shaking ague." These incomplete fits are generally to be regarded as an indication that the complaint is about to take its departure, but they occasionally occur at other periods of the disease. One of the most curious on record is that of a man who had his fits backwards, the usual order of the stages being reversed. Among the vagaries of the paroxysm, a very singular one has been noticed, in which the affection is confined to a single limb, which passes through the several stages regularly, the remainder of the system being apparently undisturbed.

The most curious and annoying thing about an ague fit is that it always returns. If one could only have it out and then have done with it, we should not care so much, but it is sure to come back again in a few days, unless, indeed, we succeed by the use of appropriate remedies in arresting its progress.

The frequency with which the fit returns varies very much in different attacks, and certain terms are used to designate this difference. Thus, when there is a fit every day the type of the ague is said to be *quotidian*. When the fit occurs every alternate day, say Monday, Wednesday, and Friday, the ague is a *tertian*. The mode of reckoning is to count the day on which the preceding fit happened as the first, so that the next fit in this form occurs on the third day. When the paroxysm occurs, say on Monday, Thursday, and Sunday, the ague is a *quartan*. These are the regular types of ague, but others are recognised which are termed irregular. Thus a *double tertian* differs from a *quotidian* only in having on alternate days fits of corresponding severity, character, and duration. In the *triple tertian* there are two fits on one day, and one on the next. In the *duplicate tertian* there are two fits on alternate days, with an intermediate fever-free day. In a *double quartan* there is a fit on one day, a mild one on the next, and then a fever-free day, and so on. These terms are not very easy to understand, and it must be confessed, that although they are frequently used, they are not of much practical value. The following table will enable the sufferer to see at a glance from what type of ague he is suffering. We have in each case supposed that there was a fit on the Monday, and have

employed the two kinds of crosses to indicate paroxysms differing in character and intensity.

	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.
Quotidian	×	×	×	×	×	×	×
Tertian	×	—	×	—	×	—	×
Quartan	×	—	—	×	—	—	×
Double Tertian . . .	×	+	×	+	×	+	×
Triple Tertian . . .	{ × }	×	{ × }	×	{ × }	×	{ × }
	{ × }		{ × }		{ × }		{ × }
Duplicate Tertian . .	{ × }	—	{ × }	—	{ × }	—	{ × }
	{ × }		{ × }		{ × }		{ × }
Double Quartan . . .	×	+	—	×	+	—	×

It is only right to mention that there are certain cases in which the fits from first to last observe no definite type or order of succession, and these are usually spoken of as *erratic* forms of ague.

What is it that determines whether the type of the attack shall be a quotidian, tertian, or quartan? It is very difficult to say, but it probably depends upon the dose of malaria which is taken into the system. When the body is saturated with the poison, it induces a fit every day, but when the poison is less concentrated, a paroxysm at longer intervals suffices for its elimination.

It is a curious fact that the hour at which the paroxysms commence is more or less dependent on the type of the disease. Thus the paroxysms of quotidian ague usually begin in the morning, those of the tertian at noon, and those of the quartan in the afternoon.

The duration of the paroxysm is also more or less influenced by the type. Thus the fits last in the quotidian from ten to twelve hours, in the tertian from six to eight hours, and in the quartan from four to six hours. It has been often remarked that as the patient is on the point of recovering, as the result of successful treatment, the paroxysms are *postponed*, or occur an hour or two later every day, until finally they disappear. At the commencement of an attack, when the patient is getting worse, the paroxysms not infrequently *anticipate*, or occur before the expected hour. As the result of repeated attacks of ague, the spleen becomes greatly enlarged, and may be felt as a hard mass under the ribs on the left side. This readily attracts attention, and is usually known as the “ague cake.” Ague is sometimes complicated or modified by other complaints. Thus in summer the patient is apt to

suffer in addition from irritation of the stomach, diarrhœa, or dysentery; and in winter from bronchitis or congestion of the lungs. Occasionally each paroxysm is attended with violent delirium, and sometimes even with convulsions.

Is ague a very dangerous disease? No, not in Great Britain. Curiously enough, there is a prevalent opinion that ague is rather a good thing than otherwise, and this notion may be traced back from the present day to the earliest records of physic. It has with us passed into a proverb that "an ague in the spring is physic for a king," and when this was repeated to James I., he being ill of the disease, he said it might be good for a young man, but would not do for an old one like him. He was quite right, for, as we have seen, it killed him. Sufferers from ague are seldom, even in the intervals of the paroxysms, capable of either much physical or mental exertion. We in England not unnaturally think somewhat lightly of ague, but in warmer climates it affords ample evidence of its appalling powers, and we know only too well that whole armies have been almost exterminated by its ravages. Fortunately nowadays death from ague, or at all events from uncomplicated ague, is very rare in Britain.

It is a curious fact that ague exhibits a strong tendency to return, even after it has been apparently cured. People who have once suffered from the disease should be very careful to avoid over-fatigue and exhaustion of all kinds, as the slightest excess in any shape or form will in many cases induce a relapse.

What should we do to avoid taking ague? The most obvious thing is, of course, not to go into a malarious district; but this is a piece of advice which it is not always possible to follow. Should your affairs necessitate your residence in an ague district, even for a short time, there are certain precautions which you will do well to adopt. You will remember that the poison never ascends to any great height, and you will if possible live on high ground, as on the top of a hill. For the same reason you will prefer to sleep in the attic to any room in the house, and if you are obliged to be out at night, you will walk about in preference to lying down. You will remember that the poison is often carried for great distances by the wind, and you will consequently prefer to live on that side of the marsh from which the prevalent wind blows. You will remember that water absorbs malaria, and if you have the choice you will let a tract of water intervene between the source of origin of the poison and your residence. You will remember that foliage attracts malaria, and you will be careful not to sleep under a tree,

although you would if possible allow a belt of trees to intervene between you and the marsh. If there happen to be any trees round your house, you of course would not cut them down. You will remember that malaria is most active at night, and you will be careful not to stay out after sunset, and not to go out early in the morning. For the same reason you will see that the windows are closed after nightfall. You will remember that ague readily attacks those who are debilitated, and you will be careful to live generously but to avoid excesses. You should never go out in the morning without a good hot breakfast; but if you can't get that, a pull at your sherry-flask won't hurt you. A moderate allowance of wine or of some fermented liquor at meals is advisable. Quinine is almost as useful in warding off ague as it is in curing it, and you will do well to take a little occasionally. A tabloid of sulphate of quinine (T. 64) or a table-spoonful of the strong quinine mixture (Pr. 10), or a tea-spoonful of tincture of quinine in water, three times a day, for a few days, will prove of the greatest benefit. A respirator or the pocket-handkerchief placed over the nose and mouth will on special occasions do much to act as a protective. It is said that by surrounding the head with a gauze veil the action of the malaria is prevented, and that by its use it is possible even to sleep in the most pernicious parts of Italy without fear of taking the fever. The following summary will, we trust, prove of service.

RULES FOR THE MAINTENANCE OF HEALTH IN AGUE DISTRICTS.

1. Build your house on a height, to the windward side of any swampy ground or marsh, and if possible let a piece of water or belt of trees intervene.
2. Don't cut down the trees round your house, but encourage their cultivation.
3. Sleep at the top of the house, and see that all your windows are shut at sunset.
4. Don't be out after nightfall, and don't go out early in the morning, and never before breakfast.
5. If you must be out at night, don't lie down, and don't stop under trees.
6. Don't drink water over which the ague poison has passed.
7. Live generously, but not too freely, and take a moderate amount of stimulant.
8. Take a course of quinine occasionally.

It is obviously the duty of the master of the house to make his servants and dependents acquainted with the best methods of avoiding ague, if they are new to the country. It would be advisable for him to serve out quinine all round occasionally, and if the purpose for which it is given is explained, no difficulty will ever be made about taking it, particularly if a little spirit and water be added to wash it down.

What is the best method of treating ague? In the first place, is it necessary to send for a doctor? In Britain ague is readily cured, but it is better, in view of the possibility of complications, to send for a doctor. In other countries, especially if the people are known to suffer severely from the complaint, you had better send at once for the best advice you can get.

Supposing you are obliged to treat the case yourself, what are you to do? In the first place, as regards the fit, what is to be done during the paroxysm? The patient's own feelings are a very good guide. During the cold stage you should cover him up well, apply hot-water bottles to his feet, and give him something hot—but not strong—to drink. During the warm stage you will find that he will throw off the bed-clothes, and ask for some cooling beverage, and there is not the slightest objection to his having it. During the sweating stage he is comparatively comfortable, and there is nothing to be done except to wipe the skin dry, if the sweating should be very profuse. Above all, don't interfere too much. Don't keep on talking to him under the impression that you are doing him good, for you are in all probability worrying him to death. When a man is really ill he doesn't want to be bothered with questions. It is no good asking him where he thinks he got it, or worrying him every moment about how his head feels now. It is easy enough to talk when you are well, but when you've got the ague you've something else to do. Sit down by the bedside quietly, and if you can help the patient do so, but don't be officious. You must remember that in ague there is often a good deal of irritation of the bladder, and that in certain cases your occasional absence from the room would be desirable.

Now what is to be done when the fit is over? A good many remedies have at one time and another been recommended for ague, but quinine is our sheet-anchor. Before we had quinine we used bark, and before bark camomile-flowers, and calomel, and bleeding, and all kinds of things. Some years ago, a favourite remedy for ague was a spider's web, and there are many people still living who will remember having been given in their youthful days a great big black spider wrapped up in a split raisin, for the cure of this complaint. It is quite possible that by the powerful impression it made upon the mind, it may have been efficacious in warding off an approaching fit.

Nowadays we always give quinine: always, that is to say, if we can get it, for on foreign service it sometimes runs short. In the case of a first attack you will do well to assume that the type is quotidian, that

is, that the patient will have a fit every day. You must manage to give thirty grains of quinine between the termination of the first paroxysm and the time on the following day at which the second may be expected. You must give the first dose of ten grains towards the termination of the sweating stage, and you must give your last ten grains about two hours before the next fit is due. The strong quinine mixture (Pr. 10) contains five grains in the ounce, so that your dose of ten grains will be contained in two ounces or four table-spoonfuls. The tabloids (T. 64) are of the same strength, and two of them should be given for a dose.

Much depends on the mode of administration of the medicine. Let us take an example. Suppose the first fit to begin at ten o'clock in the morning. It will be almost sure to be over by eight in the evening, or perhaps earlier, and you must then give your first dose of four table-spoonfuls of the strong quinine mixture. About one or two in the morning you will give your second dose, and your third and last dose at eight o'clock. What else is there to be done? If the bowels are confined you had better get them open by a pill or tabloid (Pr. 61 or T. 25 or T. 51) given at bed-time, but this is of course not necessary in every case.

Some people strongly recommend the use of emetics in ague, but they are not often required. If the tongue is very foul, or the stomach loaded with food, they may be useful and you may give relief by an emetic dose of ipecacuanha wine; but it should be distinctly understood that such cases are exceptional.

Sometimes the stomach is so irritable that it won't retain anything, and the quinine is thrown up as soon as it is taken. What is to be done in this case? The quinine *must* be given, and if the stomach won't tolerate it, it must be administered by the bowel. There is not the slightest difficulty in giving an injection, but if you don't understand how to do it you had better get someone who does. The quinine tabloids may be dissolved in about a tea-cupful of beef-tea or gruel, and then injected. Don't use too much fluid, for it will only be rejected, and the medicine wasted. If this treatment doesn't succeed in arresting the progress of the complaint, you must wait patiently till the next fit is over, and then try again. Should you, however, succeed in preventing the recurrence of the fit, you may consider that you have done very well; but for all that your work is not yet over. The patient should take two table-spoonfuls of the strong quinine mixture—in other words, five grains of quinine—every four hours, until he is pretty fully under the influence of the drug. When he tells you that he has a ringing in

the ears you will know that he is suffering from "quinism," or "cinchonism," as it is called, and that he has had enough, and that you may discontinue the drug, or at all events give a smaller dose less frequently. The phenomena which constitute cinchonism will be described when we speak of quinine. If the patient have no more fits you may consider that you have cured him; but if he is not careful he will have a relapse. The most likely time for a relapse is a lunar month from the date of the first attack, and preparatory to this the system should again be brought under the influence of the quinine. An old West Indian, who has suffered much from ague, informs us that the best way to take large doses of quinine is in a cup of green tea. He says, too, that in the tropics you require much more quinine to produce the constitutional effects of the drug than you do in England.

But what is the patient to have in the way of diet all this time? Just at first you must support his strength by milk, plenty of good strong beef-tea, and other similar nutritious substances. An occasional glass of hock or champagne, or a little brandy and soda, won't do him any harm; but if you give him wine it must be good. You can't expect to get cured of the ague on eighteen shilling claret. As soon as the fits are subdued, the patient may have anything he likes to eat in moderation, and care should be taken to see that his strength is supported. You can't fight a fever on an empty stomach.

And what about complications? Well, don't trouble very much about them, but go on treating the ague. Cure the disease, and the concomitants will get well of themselves. Don't be induced on any account to give up the quinine for the sake of a cough-mixture or anything of that kind, or you will suffer for it. At the same time, if any serious complication is suspected, you had better get in a doctor without delay. If there is at any time much irritation of the bladder, a little bicarbonate of soda may be given.

What is to become of the patient when he gets well? Of course he must not stop in the malarious district. A change of scene, nutritious diet, and plenty of exercise in the open air, will usually soon make things all right again; but if there is any return of the symptoms, recourse must be had to the quinine in moderate doses. A couple of table-spoonfuls of the tonic quinine mixture (Pr. 9 or T. 63) three times a day may be taken with advantage.

But suppose quinine fails to effect a cure? Such cases do undoubtedly occur. The addition of ten minims of the tincture of gelsemium to each of the three doses of quinine should then be tried. A combination

of quinine and gelsemium will often prove successful when quinine alone has failed. There is no doubt that even by itself gelsemium is a very valuable remedy for ague.

The objection to quinine is that it is a little bit expensive for poor people. In the French army they give arsenic because it is cheaper. As we have said before, economy in medicine is only another name for reckless extravagance. Arsenic is a good remedy for ague, although it is far inferior to quinine. We must say, however, that it has sometimes succeeded where quinine has failed. A table-spoonful of the arsenic mixture (Pr. 40) may be given three times a day, after meals, or the tabloids (T. 7) may be used. Sometimes arsenic may be used as an adjunct to quinine. Thus, when the complaint has been checked by quinine, the cure may be conveniently completed or confirmed by a little arsenic. Or, on the other hand, when little benefit has been experienced from quinine, the arsenic may stop the fits, and quinine may then serve to prevent their recurrence.

Salicin, obtained from willow-bark, is sometimes used in the treatment of ague, when from any reason quinine is not obtainable. Three tabloids (T. 68) dissolved in an ounce and a half of water should be taken every two hours. Little or no benefit will be derived from smaller doses. The decoction of willow-bark itself may be used, and fortunately the willow abounds and flourishes in marshy places.

We have not spoken definitely of the use of bark in the treatment of ague, for of course it will be understood that quinine is the active principle of, and is obtained from, cinchona bark.

In conclusion, we give a summary of the best method of treating ague.

RULES FOR THE TREATMENT OF AGUE.

1. No active treatment is required during the fit.
2. Between the fits give three ten grain doses of quinine.
3. Support the strength by milk and beef-tea and a moderate allowance of wine.
4. If the bowels are confined give a calomel pill.
5. If the quinine does no good, add ten drops of tincture of gelsemium to each of the three doses.
6. Should this not succeed, give the arsenic mixture three times a day in table-spoonful doses.
7. Resume the treatment a few days before the expiration of a lunar month.
8. On recovery, change of air, good feeding, and plenty of exercise are necessary.

ALCOHOLISM (Inebriety, Intemperance).—By alcoholism we mean the condition which is induced by over-indulgence in alcohol. It may occur either in a chronic or an acute form. Acute alcoholism is only

another name for delirium tremens, and we will describe it in detail under that heading. It is of chronic alcoholism that we are now about to speak. We know of no other name for it, but it is from this complaint that we wish to indicate that a man is suffering when we say that he is a tippler.

What are the causes of alcoholism? We can sum them up in one word—drink. But how is it that some people “take to drink” whilst others show no inclination to do so? This is the question we will now consider.

It is a very general opinion amongst medical men that a tendency to alcoholism is, in a certain sense, hereditary, and the children of a drunken father or mother are very likely to be drinkers. Undoubtedly the force of example is not without its influence, but still there is something over and above this. We frequently find that of the children of intemperate parents, one is a drunkard, a second an idiot, and a third suffers from fits, whilst the remainder exhibit other forms of nervous disturbance. We believe that the majority of the most inveterate and hopeless cases of alcoholic excess occurring among the higher classes of society are produced less by the circumstance of external momentary temptation in which the patient is placed, than by an inherited weakness of the nervous system, which renders all kinds of mental and bodily trouble especially hard to be borne. Occupation is undoubtedly a powerful predisposing cause of alcoholism. In hospital practice we find that a large number of cases are distinctly traceable to the frequent presence of temptation, as for example, in workmen at breweries and distilleries, and potmen and waiters at taverns. In a somewhat higher grade of life, public-house keepers, and the clerks and travellers for wine and spirit houses are very liable to alcoholism. Gentlemen’s servants, and especially butlers, afford a fair proportion of cases.

Then again poverty often leads to drink. The home is wretched, and the man resorts to the gin-palace. He sleeps in a close, badly-ventilated room, and gets up in the morning suffering from headache, and a feeling of listlessness and depression. He seeks temporary excitement in a dram, and the day so commenced is often continued as it was begun. There is a very common opinion that drink is the simple and uncomplicated cause of the greater number of crimes committed by the poor. The truth is that in recognising the indisputable fact that drunkenness is often followed by crime of a worse kind, we are apt to overlook a large portion of the history of the criminal, and especially the wretched poverty in which he is usually reared. The demoralising influence of this

poverty is the central fact on which we ought to concentrate our attention; it is a common cause of general reckless behaviour, of which drunken habits are only a part, although they undoubtedly render the commission of fresh crimes more probable. People who are under-fed, or who have their meals badly cooked, or at irregular intervals, often exhibit an intense craving for alcoholic stimulants. Starvation—actual severe deprivation of food—cannot be a positive predisposing cause of drunkenness, for the opportunity of getting liquor is cut off by the extreme degree of poverty which brings about such a state of things. It is rather the continual sense of embarrassment of and misery consequent on the difficulty or impossibility of paying debts, so common in the lowest ranks of the middle classes, which provokes the habit of drinking.

A monotonous life often leads to alcoholism, and this is more frequently the case in the upper and middle classes than in the lower, and more frequently in women than in men. Take the wife of a professional man, without children, for example. When her husband has gone out in the morning to his business, whatever it may be, she feels lonely and depressed, she has nothing much to do, and soon gets tired of her ordinary amusement, reading or sewing. She feels dull and listless, and what more natural than that she should resort to the chiffonier for a little temporary stimulus? Generally it begins with a glass of sherry or port, but gradually it grows on her and becomes almost a necessity, and the dose has to be increased to produce the desired effect. The want of active out-door exercise represses elimination, and much increases the evil. It may be thought that this statement is overdrawn, but it is not; we wish it were. Every doctor in the course of his practice has met with scores of such cases. We have known women who would drink their eau-de-cologne if they could get nothing else. It is a puzzle to many people how a woman in a fairly good position of life can get alcohol without a knowledge of the fact coming to the ears of her husband. It must be remembered that up to a certain point no suspicion attaches to the inebriate, and she is entrusted with money for household expenses for which she is never called on to account very strictly. Having money at her command there is very little difficulty in satisfying her unfortunate craving. She will not stand at the bar of a public-house for fear of being seen, but many women know of public-houses which are fitted up with little rooms not unlike the departments in a pawnbroker's shop, and those afford an unfortunate facility for obtaining drink without publicity. Then there are the various Bodegas, restaurants, and

refreshment bars at railway stations, which at certain times in the day are much frequented by ladies. If the drink is taken at home it is often brought in in single bottles and concealed in a despatch box or in the drawer of a wardrobe. Very often the drink is brought in by a maid or some other servant, who uses her knowledge of the victim's secret to blackmail her mistress. The empty bottles are got rid of by packing them in a box and sending them by rail to some fictitious address. The grocer too, sometimes affords facilities to the female inebriate. Unscrupulous grocers do not hesitate to send in gin or brandy, and put it down in the account as sugar or tea. Many ladies get their alcohol in the form of eau-de-cologne from their chemists. It is said that for a very long time a West End chemist supplied a particular lady customer with two dozen pint bottles of this scent every week. It was stated that it was used in the bath, and it was long before any suspicion was excited that she was an inebriate. It is painful to make these disclosures, but drink is a national vice, and it is as well that husbands and fathers of families should be made acquainted with these details.

Inclemency of weather is another predisposing cause of alcoholism. A man is, say a cab-driver, out in all weathers, wet and fine. He gets wet through, and has no means of changing his things, but has to stand about, or sit on his box, perhaps in a biting east wind. It is hardly to be wondered at if he tries to put a little warmth into his body by a glass of gin or whiskey. It is of no use telling him that alcohol lowers his temperature, and that it lets in the cold instead of keeping it out. You may prove it to him most conclusively in your own way, but if you finish up by asking him what he will take, he will probably choose alcohol in some form or other.

Long-continued pain sometimes makes people seek ease in alcohol. This is the case very often with young women who suffer from neuralgia. Those who have vague uneasy feelings about the stomach sometimes endeavour to relieve them by wine or spirits. The depression and faintness attending the menstrual period in some women, and the debility and low spirits which often distress nursing mothers, may lead to the use, or rather abuse, of alcohol. Women who have a tendency to be hysterical have often a craving for strong drinks, which should be most carefully kept in check.

In the higher classes of society we not infrequently see men who have failed in some cherished speculation, or women who have lost the only object they cared for in life, take to drink with an almost insane vehemence, although they may never have shown any such tendency

before. It is not that there is any particular temptation in the taste of the drinks to which they have recourse, for it is a fact that even the most refined and delicate women, when they resort to these practices, do not drink wine, but brandy or gin, or some equally coarse and strong spirit. It is a mere accident that leads them to select alcohol; under other circumstances they would take opium or hashish, or any other intoxicant which they could most conveniently obtain, or they would plunge into the indulgence of some special vice, or resort to any form of excitement which would promise them oblivion.

Often enough there is nothing which can be regarded as a predisposing cause of alcoholism; and yet people take to drink. They have a liking, nay, an earnest longing, for it, and they will do almost anything to gratify their desire. Some people never drink except in company; with others the mania is for secret drinking. It is difficult to say which practice is the more pernicious.

The fact that alcoholism is a very insidious disease has long been admitted. As far back as the year 1872 a Select Committee of the House of Commons, after reviewing the evidence of many witnesses competent to form an opinion on the subject, reported "that occasional drunkenness may, and very frequently does, become confirmed and habitual, and soon passes into the condition of a disease uncontrollable by the individual, unless, indeed, some extraneous influence, either punitive or curative, is brought into play; that self-control is suspended or annihilated, moral obligations are disregarded, the decencies of private and the duties of public life are alike set at nought; and the individuals obey only an overwhelming craving for stimulants to which everything is sacrificed."

Now as to the symptoms induced by the continual excessive indulgence in alcohol. Nothing more surely undermines the constitution. One of the first symptoms is indigestion and want of appetite, especially for breakfast. If a man can't eat his breakfast it is a bad sign—there must be a screw loose somewhere. Then there is a little tremulousness of the hands, and about the legs. Tell the patient to hold out his hand, and you will see how shaky he is. He may keep it quiet for a time by a great effort, but never for long. A man's hand should be as steady as a rock. You find on inquiry that he is restless at night. He tells you he can't sleep; he turns and twists about hour after hour, and dozes a bit, but never goes right off. The slightest noise wakes him, and he hears every hour strike. Very often he dreams the most horrible dreams, and acts and re-acts all the events of the day over and over

again. The brain, he says, is always on the work, and he can't rest. He complains of noises in the ears, feels giddy, and sees specks or bright lights floating before his eyes. There is never any distinct hallucination, as there is in delirium tremens. Another prominent symptom is morning vomiting, or perhaps a little retching before breakfast. If a person tells you he is always sick the first thing in the morning, directly he gets up, you may be pretty sure that he drinks. You must, of course, exclude the case of women who are pregnant or suffering from some disorder of the womb, as that would be quite sufficient to account for it. Tenderness of the feet is another indication of alcoholism. You see old drinkers going about in their slippers all day long. These people are often great sufferers from piles.

There are certain symptoms which indicate pretty clearly that alcohol is being indulged in to excess. If a man who has always been a kind husband and a good father gradually develops a marked irritability of temper, and is easily put out or thrown off his mental balance, alcoholism may be suspected. Another sign is indecision of character. The man whose mental fibre is undermined by alcohol is always undecided, and has great difficulty in making up his mind. You see it in many ways, and especially in small things. He stands hesitating on the kerb, and cannot make up his mind to cross the street. He calls a cab, and then changes his intention and says he will walk. He packs up his things to go into the country, and finally, at the last moment, says he will stay in town. He accepts invitations and makes engagements which he fails to keep. His moral courage deteriorates, and if he gets into a row he fails to see it through. If his character is attacked he blusters and threatens vengeance, but when the time comes fails to put in an appearance, and says it is not worth noticing.

The commencing alcoholic suffers much from depression of spirits, and is apt to take a very despondent view of things in general. He is always complaining that "business is bad," and has little or no energy or enterprise. He has very little physical energy, and makes matters worse by taking little or no exercise.

He often complains of pains in his limbs, which he attributes to rheumatism or gout, but which are, in reality, due to alcoholic neuritis.

After a time, when the habit has been indulged in to excess, the smaller arteries and veins of the face become dilated, especially in patches, so that the patient presents a mottled appearance. He is sensitive on this point, and thinks that people notice it.

Many alcoholics never take stimulants to excess in public. Many

of them, in fact, take little or nothing in the daytime, but indulge freely in whiskey and water during the evening. A man who lives much alone and leads a sedentary life is far more likely to become a confirmed alcoholic than one who is pretty constantly under observation.

You can often recognise a drinker from his general appearance. Curiously enough, some people get fat on drink, whilst others get thin. You may meet with every degree of fatness, from the unwieldy bulk of the country publican, who fuddles himself with beer, to the slight frame of the London hairdresser, who often enough makes away with two or three quarterns of gin or rum in a day. You can often tell that a man drinks by his face. It is flabby and bloated, with red watery eyes, the whites of which have a tendency to become yellow from slight jaundice. Everyone recognises the significance of a red nose, although in certain exceptional cases this condition arises from mere dyspepsia. The smell of the breath is usually very characteristic, and there is no mistaking it even if spirits have not been recently taken.

It must be remembered that excessive indulgence in stimulants is often associated with other bad habits. The man who drinks too much often smokes too much. Moreover, being restless at night, he may resort to morphia; or if pains in the limbs are severe he may fall back on cocaine. The habit of taking these drugs soon grows on one, so that after a time the patient finds great difficulty in doing without them. He may try, for the sake of his reputation or for the sake of his family, to turn over a new leaf, but so long as there is a bottle of whiskey within reach he finds it almost impossible to resist it.

The first thing to be done in the treatment of chronic alcoholism is to knock off the drink entirely. If you are not prepared to do this, it is of no use going further into the matter, for we can do you no good. This is a point on which we must positively and absolutely insist. But this alone is not enough; you will have to take medicine as well. A very good prescription is the following:—Epsom salts, one ounce; infusion of quassia, eight ounces; mix. Two table-spoonfuls three times a day. It does not as a rule purge. Sometimes it is advisable to add five drops of tincture of nux-vomica or two grains of sulphate of iron to each dose. Another good remedy, especially for patients about the age of forty who are inclined to become stout, is a dose of Hashra tea taken every night at bed-time. The aromatic bitterness of the infusion allays the craving for the customary “night-cap.” Not infrequently a sulphate of quinine tabloid (T. 63) taken three or four times a day relieves the desire for alcohol which it is so difficult to resist.

When morning vomiting is the chief symptom a small tea-spoonful of the arsenic mixture (Pr. 40 or T. 7) three times a day is the best remedy. The first dose should be taken in the morning before rising. Another good plan is to take a tabloid of capsicum (T. 22) frequently during the day. The little bottle of tabloids may be carried readily enough in the pocket, and excites no attention. Capsicum in small doses is not injurious even when taken for days or weeks at a time, and the pleasant feeling of warmth it excites is soothing to the old alcoholic. Many patients like the soda-mint tabloids (T. 72), but others object to them on the ground that the smell of the peppermint is unpleasantly suggestive.

Very often the great trouble is the persistent wakefulness and the appearance of black specks or flashes of light before the eyes. It is a mistake to take narcotics, such as laudanum, with the view of inducing sleep, for they often do more harm than good. The prescriptions we have already given will generally remove this condition in a day or two. One of the best remedies for this condition is bromide of strontium. Three of the five-grain tabloids should be dissolved in a little water and taken the last thing at night, preferably when the patient is actually in bed. Another good remedy is bromide of potassium—two table-spoonfuls of the mixture (Pr. 31) or three tabloids (T. 18) three times a day, the last dose being taken on retiring to rest. Sometimes it upsets the stomach and cannot be taken, but this difficulty is not of frequent occurrence. The oxide of zinc pills (Pr. 66) have often a powerful effect in inducing sleep. It is best to take one twice a day, and two at bed-time. They should be taken shortly after a meal, and never on an empty stomach, or they may produce nausea. But a medicine which is quite as effectual in many cases is good bottled stout taken in one single dose of half a pint at bed-time. This is the only exception to the rule that no alcohol is to be taken.

When the more prominent and distressing symptoms have been relieved treatment in some form or other will have to be continued. He must not be allowed to return to his alcohol, or he will soon be as bad as ever, and yet he must have something to drink, something, that is, which without doing him any harm will satisfy the intense craving for stimulants. A thoroughly satisfactory temperance beverage has not yet been invented, but a very good non-alcoholic drink may be made by adding a wine-glassful of Kepler essence of malt and a tea-spoonful of tincture of quassia to a tumblerful of Rosbach water. If the patient shows any tendency to run down, he will derive benefit from a tea-spoonful

of syrup of the hypophosphites in a wineglass of water twice a day—at eleven in the morning and four in the afternoon. The elixoid of phosphorus is useful, and a tea-spoonful may be given three times a day in water. One of the tonic tabloids (T. 79) before each meal will improve the appetite. Cod-liver oil is in this condition as useful a remedy as can be met with, and its use may be continued with advantage for many months. The patient should get as much fresh air as possible, and care should be taken that he has plenty of good nourishing food.

Various quack remedies are from time to time advertised for the cure of alcoholism, but it will be found that they are frauds, and have no claim to serious consideration or investigation. Some time ago an attempt was made to introduce hypnotism as a remedy for drink craving, but it cannot be said that the results were very satisfactory. In some cases good was effected, but apparently only by the moral impression which was made on the patient. Hypnotism in some nervous conditions does good, but it is a dangerous weapon to place in the hands of a person respecting whose honour and integrity little or nothing may be known. If resorted to it should be only under medical advice.

We must now consider briefly how far a person who is a confirmed drunkard may be restrained from indulging in his overwhelming craving for stimulants. In 1879 an Act was passed known as the Habitual Drunkards Act, "to facilitate the control and cure of habitual drunkards." By this Act licensed "retreats" were established for "the reception, control, care, and curative treatment of habitual drunkards." For the purposes of the Act "habitual drunkard" is defined as meaning "a person who, not being amenable to any jurisdiction in lunacy, is notwithstanding, by reason of habitual intemperate drinking of intoxicating liquor, at times dangerous to himself or to others, or incapable of managing himself or herself or his or her affairs."

Probably the best method of reclaiming a drunkard is to put him in a retreat under the Habitual Drunkards or Inebriates Acts (42 and 43 Vic. c. 19 and 51 and 52 Vic. c. 19). One great difficulty is that in the majority of cases if a man is put away his income ceases. In the case of women, who are generally the worst drunkards, this complication does not present so great an obstacle, for as a rule they are not the breadwinners of the family. Another difficulty is that the patient's consent has to be obtained, and although a person who is practically the slave of alcohol may be anxious to reform, he will not always consent to put himself under restraint. Under the Act the retreat for the reception of patients must be duly licensed, and must be inspected at least twice a year. The

patient who wishes to enter the establishment must make application in writing stating the time during which he undertakes to remain. His application will not be entertained unless it is accompanied by a certificate of character signed by two friends, stating that he is an habitual alcoholic. His signature must be attested by two justices, whose business it is to see that he understands the nature of his application. These formalities having been satisfactorily arranged the patient may be detained during the time he has selected, which, however, must not exceed twelve months. Should he escape he may be arrested on a warrant, and any person assisting him to escape may be punished. Moreover, it is an offence to supply the patient with any intoxicating drink, or with any sedative or stimulant drug, without the authority of the licensee, or of the medical attendant. Many houses under the "H. D.," or Habitual Drunkards Acts, have been opened all over England, and as a rule they are admirably conducted. For people who are in a fairly good position of life, and who are not absolutely dependent on their daily labour for their daily bread, this method of treatment is the best that can be adopted. If the patient will only consent to live in a certain place and under certain conditions for a year, he will almost to a certainty be cured of his disease. The initial outlay may seem considerable, but on the other hand it must be remembered that the cost of getting drunk day after day is not small. If the Act were more generally known there is not the slightest doubt that more use would be made of it. Even when the patient himself entertains an objection to placing himself in a retreat, a little judicious influence on the part of relatives and friends may induce him to see the matter in a different light.

It may, perhaps, be as well to mention that it is probable that before long the provisions of this Act may be considerably extended. It is thought desirable that there should be separate retreats for criminal drunkards and those habitually brought before a magistrate. It is probable that more people would embark capital in opening retreats if the magistrates' licence lasted longer than thirteen months, as it does at present. There might be some simplification of the mode of admission, and powers might be given for the control of drunkards who, on their release, speedily relapse into their old habits. In a memorial addressed to the Inebriates Committee by a representative body of medical men and others interested in the welfare of alcoholics, the memorialists express their views in the following terms:—"We earnestly desire the compulsory restraint, with all proper safeguards, of those men and women who cannot control themselves in this respect. We are of

opinion that much good may be done to inebriates if compulsory detention can be enforced for a sufficient time, and if, upon release and subsequent breakdown, they can again be placed under control without delay or difficulty." It is probably on these lines that future legislative action will be taken.

In connection with the subject of alcoholism it may be as well to make a brief allusion to the so-called gold cure for inebriety which was a good deal talked of a year or so ago. The remedy has been fully and impartially investigated, and has failed to obtain the support of those competent to form an opinion on the subject. A liquid known as the "double chloride of gold" and sold at four and a half dollars a bottle, containing about eight ounces, was analysed, and was found to contain not the smallest trace of any salt of gold whatever, but $27\frac{1}{2}$ per cent. of alcohol (*The Medical Press*, July 13th, 1892). At a meeting of the Society for the Study of Inebriety, a resolution was passed condemning unreservedly the prescription of such an intoxicating preparation to an inebriate.

We have no intention of entering into the question of drink as a national vice. It is a subject too vast for discussion in a work on domestic medicine. We have, however, no hesitation in saying that if we could provide better and healthier dwellings for the poor, there would be a great decline not only in the amount of drunkenness, but of other forms of crime with which it is associated with such frightful frequency. Dickens once said:—"Gin-drinking is a great vice in England, but wretchedness and dirt are a greater; and until you improve the homes of the poor, or persuade a half-famished wretch not to seek relief in the temporary oblivion of his own misery with the pittance which, divided among his family, would furnish a morsel of bread for each, gin-shops will increase in number and splendour. If Temperance Societies would suggest an antidote against hunger, filth, and foul air, or could establish dispensaries for the gratuitous distribution of Lethe-water, gin-palaces would be numbered among the things that were."

ANÆMIA, OR POORNESS OF BLOOD.—Anæmia, or poorness of blood, is of frequent occurrence not only as a distinct disease, but as a symptom of many other diseases. It is a chronic complaint, and is so common in London and other large towns that you cannot walk down Regent Street any afternoon without meeting with literally dozens of cases. It occurs more commonly in women than in men, and more frequently in

young people than in old. The majority of cases are seen in young women of from fifteen to twenty.

The symptoms are usually well marked, and no difficulty is experienced in recognising the nature of the complaint. There is always more or less pallor of the face and lips, which is very characteristic. It is quite distinct from the bilious yellow colour you see in jaundice, and has rather a tendency to shade off into olive. In some cases of anæmia this paleness of the face may be obscured by accidental circumstances. For instance, you would not observe it in people who had been browned by exposure to the sun, and probably not in cooks and others who spend much of their time over the fire. The nature of the case is, however, at once apparent if you examine the skin of the neck or some other part of the body protected from exposure. Another good way of detecting the presence of anæmia is to look at the nails, or to turn down the lip or lower eyelid, and see if they present their natural red colour, or are paler than usual. In turning down the eyelid you must be careful not to make it tense, or you will drive the blood out of the part, and you may be deceived by the pallor so caused.

In cases of anæmia there is generally a little puffiness not only about the face but about the legs and ankles. There is no fever, but the pulse is usually increased in frequency, and is small and weak. The circulation is languid and depressed, and even slight exertion will bring on palpitation of the heart. Headache is very common, and is usually felt over the region of the temples, and at the top of the head. As a rule it is not an intense or an agonising pain, but a dull heavy sensation, as if something were pressing down and out. It is increased by abstinence from food, and by the erect posture, but is better on lying down. It usually comes on in the morning whilst dressing, goes off after breakfast, and comes on again before lunch or dinner, and so on. It is aggravated by exertion, and is of a throbbing character. It is sometimes accompanied by a feeling of fulness and weight, and by noises in the ears, and a sense of pulsation all over. The noise in the ears is on both sides, is rumbling and low-pitched, and is often described as being like cart-wheels in the distance. It is intensified by any mental effort, such as thinking, or reading, or writing. There may be occasionally a little giddiness for a minute or two, and things may seem as if they were going round and round. The muscles are weak, and a difficulty is experienced in making any prolonged or forcible exertion. From the defective state of the circulation the fingers are often blue, and the patient complains of "pins and needles." The patient is usually a little

lethargic and disinclined for exertion, and the relations between sleeping and waking are apt to be upset. The appetite is probably poor, and it often happens that nothing but a cup of tea with perhaps a little bit of bread-and-butter is taken after the early dinner. At bed-time the patient is depressed for want of food, and probably passes a sleepless, restless night. The next day the requisite rest is taken in the arm-chair, or the patient has his "forty winks" on the sofa, and so the thing goes on. The secretions are more or less disturbed, the urine is thick and forms a deposit on cooling, and the bowels are sluggish, constipation sometimes alternating with diarrhœa. The poorness of the health may give rise to great despondency.

Anæmic people often take on odd fancies and do odd things, and are very apt to get strange notions into their heads. They often have specks before the eyes, or, perhaps, little bright shining spots. Sometimes they see spectra, and sometimes their sight is peculiarly affected so that they see only halves of things. They are very apt to suffer from confusion of ideas, and feel stupid from noises in the street. Very frequently in women there is some disturbance of the menstrual function, the periods being scanty or altogether absent. Anæmia is said to be a common cause of barrenness.

The conditions which may give rise to anæmia are very numerous. In the first place it may have been caused by loss of blood, which may have arisen spontaneously or as the result of accident. It matters little from what part of the body the blood flows, the result is the same. For instance, a vessel may have been cut across by a stab, or the patient's nose may have been bleeding, or he or she may have been spitting up blood from the lungs, or vomiting it from the stomach. In the case of women the periods may have been excessive either in quantity or frequency, or there may have been excessive bleeding at a confinement. The continuous loss of blood from piles may give rise to anæmia. Then again, although there may be no loss of blood, there are other ways in which the strength may be exhausted. A woman may continue to suckle her child long after her health has shown signs of giving way, probably thinking that in this way she may succeed in warding off another pregnancy with its attendant trouble and expenses. Anæmia is very readily produced by the "whites," or any discharge of a similar nature. The result is the same when the natural secretions are in excess, as for instance in chronic diarrhœa, or in diabetes, where very large quantities of water are passed.

When there is no excessive discharge to account for the presence of

anæmia, it may be found to depend on a defective supply of food. It is not, so to speak, the expenditure which is in excess, but the income which is deficient. It is to be feared that even in the middle classes of society the number of people who from some reason or the other are unable to obtain a proper supply of food is very great. Where the quantity is sufficient, the quality may be bad, or there may be a want of variety. Even where the food is obtainable in abundance the patient may have no appetite, and may be unable to eat it. We may even go a step farther, for the patient may eat his food and yet from the presence of some disease or disorder of the stomach may not digest it. Anæmia may result from a deficient supply of daylight. The patient becomes blanched just as many vegetables do when grown in the dark.

Many chronic diseases, such as cancer, are attended with anæmia. It commonly occurs in people suffering from ague. It is produced in the course of slow poisoning by many metals, as for example, lead, mercury, arsenic, and copper. As we shall presently see, iron is the great remedy for anæmia; but iron, when taken into the system in large doses and for long periods, proves a powerful agent in the production of this complaint. Blood-poisoning, as the result of over-indulgence in alcohol, whether in the form of beer, wine, or spirit, may give rise to anæmia, and so may excessive smoking. Over-work is a very common cause, and it is said that taking excessive exercise may be attended with the same result. Running up and down stairs has been found in many cases to produce anæmia, probably because during the effort the chest is fixed and respiration is interfered with. Working at a great elevation or at a great depth, as in mines, produces poorness of the blood, as does working in a constrained position, like a tailor or cobbler. Worry, anxiety, and mental and moral disturbances have all a similar effect, and so has long-continued pain, such as you suffer from in neuralgia. A well-known physician, speaking of anæmia says:—"The sufferers are the victims of our subterraneous kitchens, and back shops, and of that atrocious domestic system which deprives young women in service of open-air exercise and enjoyments peculiar to their age. Secondly a depraved appetite arises, and tea with bread-and-butter comes to form their sole diet, as all healthy desire for meat soon vanishes. These devitalised plants which never see the sun languish in nervous power and furnish our worst cases of hysteria."

When marked anæmia occurs in young women about the age of puberty, it is often spoken of as "chlorosis." Chlorosis is commonly associated with some disturbance of the menstrual function, but there is

no essential difference between chlorosis and anæmia. The causes by which it is produced are those to which we have already referred. Chlorosis is sometimes called the "green-sickness," from the excessive pallor of the face. It is not uncommonly an accompaniment of hysteria. Young women suffering from this combination often display a perverted or even depraved appetite. They often fancy acids and highly-seasoned foods, and sometimes they swallow and apparently relish such substances as chalk, paper, ashes, coals, plaster of Paris, hair, and earth. There is generally some disturbance of the organs of digestion, and not uncommonly the breath is very offensive. Menstruation is absent or performed imperfectly, irregularly, and with pain, and the flow is thin and watery, or mixed with "whites." The periods are not only irregular in their return, but inconstant, of short duration, deficient in quantity, and pale in colour.

Anæmia is often confounded with consumption, and many of the cases of cured consumption of which one hears so much are in reality nothing but cases of anæmia. We don't mean to say that consumption is not curable, but it is just as well to make sure that the sufferer is really consumptive before attempting to cure that complaint. It is undoubtedly a great thing to be assured that you have been cured of consumption, but you would naturally feel far more than thankful to learn that it was all a mistake, and that you never had consumption at all. There is no difficulty in distinguishing anæmia from consumption. In anæmia the patient does not look consumptive, at all events to the practised eye, and in spite of the paleness and delicate appearance, there is neither loss of flesh to any extent, nor fever. In all doubtful cases a physician should be consulted, for by a simple examination of the chest he may be able to assure you that everything is right, and that you are neither consumptive nor in danger of becoming consumptive. There are thousands of women in England, wives and mothers of children, who, because they were anæmic when they were about seventeen, were thought to be "weak about the chest," and were said to be "going into a decline." The fact is that anæmic people seldom become consumptive, and the two conditions are apparently antagonistic. A few years ago a physician carefully examined one hundred and twenty-five people who were suffering from marked anæmia, and in not one of them was a trace of consumption to be detected.

Is anæmia curable? Undoubtedly. And chlorosis? Quite so. And it's nothing to be alarmed about? Not at all. And people don't die from it? Not a bit; they couldn't if they wanted to. And what is to

be done to get rid of it? In the first place you should try and find out what it arises from. Perhaps you don't get out much. A good brisk walk in the Park every morning will do you all the good in the world, and if you can get a pleasant companion to accompany you, so much the better. Possibly your work keeps you in till it is dark, and then you don't care to go out. Never mind, you had better get out; a walk in the dark will do you more good than no walk at all. Only take care that you don't over-exert yourself just at first. Your appetite is bad, and you don't care much for anything? Well, you must try and live a little more generously. You are an overworked student, and have been poring over your books too much lately, reading for that wretched examination. Just put your books aside for a bit, and jump on the top of a 'bus, and have a good blow, or run down to Kew or Richmond on one of the boats. Don't hesitate to accept an invitation to dinner if anyone will ask you. Well, if no one will "do the civil," you might invest a couple of shillings and go to the theatre, only go and see a good comic piece, not a tragedy. You had better go in the pit, and not in the stalls: you won't have the bother of dressing, and it will do you ever so much more good. Oh, you think you've been smoking too much lately? Well, you look as if you had. You know, you'll have to knock it off. No, not altogether, but three or four pipes a day will be quite enough just at present. And you must give up that strong cavendish, you really must. Try returns, or at all events something mild. Did we ever hear of any harm come of giving up smoking? No, never, and we don't believe that your health would suffer in the least if you never smoked another pipe in your life. Is brandy and soda a good thing to take in the morning? No, wretchedly bad; it's poison to you. B. & S. has been the ruin of many a man. If you didn't drink so much overnight you wouldn't feel the want of it in the morning. Only took four glasses of whiskey cold last night? And far too many. Where do you expect you'll go to if you go on drinking in that way? It ruins you in pocket and it ruins you in health. And you, sir, you neither smoke nor drink? What can we do for you? Have piles, have you? Had them for the last thirty years? Ever since you were at college? And bleed very much every morning, after you have paid your usual visit? Well, no wonder you're anæmic. Just turn to what we said on piles, will you? Yes, hamamelis will probably be the remedy for you. We'll stop the bleeding, and then we'll see about curing the anæmia. Think the water is bad, do you? Have been told that it contains lead? Very likely. You had better have it seen to, and don't

drink any more of it till you are sure it's all right. Keep to beer or light claret for a time.

Well, now you've removed the cause of your anæmia, what are you to do next? You must take iron. Iron is the remedy *par excellence* for anæmia. You've taken it already, have you? Well, you'll have to take it again; you probably didn't take enough of it. But you don't like iron? It can't be helped, you'll have to take it whether you like it or not. But it's sure to upset you? No, it won't, not if you take it in the way we are going to tell you. You will have to try those sulphate of iron pills (Pr. 63) we recommended when speaking of the preparations of iron. They are the best remedy we know for anæmia, and they hardly ever upset the stomach. You don't like pills? Well, these are not at all nasty to take, and they haven't a bit of smell to them: well, very little at all events. And see how beautifully hard they are: you might almost give them to the children to play marbles with. If they are so hard, they must be insoluble, and can't do any good? Not at all; just get a tumbler of water and drop one of them in, and you will see how quickly it dissolves. That reminds us that we once knew a patient, a young lady, who really couldn't take these pills; they wouldn't go down, she said. And what did she do? Why, she took a tumbler of water, just as you have been doing, and dissolved one of them up, and drank the solution. And would they act as well that way? Every bit as well, only if you want to take sulphate of iron in water there's no occasion to make it up into a pill first. You don't like the taste of it? Tastes like ink, does it? Well, of course, all iron preparations do more or less, and ink is made with iron; in fact, with sulphate of iron, the very salt you have here. Then ink might do good in anæmia? Quite so; in fact, years ago there was a physician who was in the habit of prescribing a mixture of iron which looked so much like ink that people called it after him "Heberden's ink," and he really cured a good many cases with it. And there are other preparations of iron? Just so; and by-and-by, in the *Materia Medica*, we shall have to enumerate a great many, and discuss their respective merits. If you don't like the pills you needn't go on with them, only don't give them up without a fair trial—say one twice or three times a day for at least a fortnight. If you can't take the pills try tabloids, which answer just as well, if not better. There are several tabloids which contain iron, the best being the Blaud pill tabloid (T. 15), dialysed iron tabloid (T. 38), and the tabloid of reduced iron (T. 65).

The tincture of steel, or tincture of perchloride of iron, as we

commonly call it, is a capital preparation. You may take it alone in a wine-glassful of water, say thirty drops three times a day; or if you like it better, you may take it in the form of one of the mixtures (Prs. 1 and 2). But wouldn't some of the milder preparations, such as the tartrate of iron, or the citrate of iron and quinine, do equally well? We think not; we have always seen more benefit derived from one of the more astringent preparations, such as those we have recommended. Very often it is well to humour the stomach, and to change the form in which you take your iron. You might lead off with the pills—we have great faith in those pills—and then go on to Prs. 2, 3, 6, and 7, or T. 15 and 65.

Mineral waters containing iron undoubtedly do good in anæmia, especially when you drink them at the source. Very likely the change of scene and the difference in living have something to do with the improvement, for the quantity of mineral in any of these waters is very small. You find "ferruginous" or "chalybeate" waters, as they are called by people who like long names, at Pymont, Spa, Schwalbach, Tunbridge Wells, Harrogate, and many other places. The waters of Sand Rock, Isle of Wight, contain sulphate of iron, the salt of which those pills are made. If you want arsenic with your iron take Levico water—one teaspoonful in wine, milk, or water three times a day, after meals.

And is it a fact that some people really can't take iron? Well, we suppose it is—in fact, there can be no doubt about it. What does it do to them? It upsets their stomachs, and produces pain and fulness in the head. Do we know of anything that will do them any good? Yes, but nothing which at all equals iron. They should try the quinine or quinine and iron mixtures (Prs. 9 and 11). They often prove of great benefit to the pale badly-fed inhabitants of large populous towns. Then there is the hypophosphite of lime, of which we have spoken favourably. It usually does more good in young than in old people. Phosphate of lime is useful in the anæmia of boys and girls who have outgrown their strength. It is also of service in the case of women weakened by rapid child-bearing, prolonged suckling, or excessive menstruation. Sometimes small doses of arsenic (T. 7) will do good, especially when the anæmia has arisen from an excessive discharge of some kind, and when it is accompanied by shortness of the breath and excessive languor. Pulsatilla (Pr. 43) is indicated when the periods are scanty or absent, when there is loss of appetite or taste, and when there is a tendency to relaxed bowels. These remedies may, and probably will, do good, but none of them are equal to iron, or will act with equal quickness and certainty.

And is this all that there is to be done? Very nearly. There are certain accessory measures, such as the morning tub, sea bathing, a good gallop across the downs, and so on, but these would so obviously prove beneficial that we need not refer to them at greater length. What about the headache and noises in the ears? These will take their departure as soon as you get rid of the anæmia. As we have already said, the headache you suffer from before breakfast is due to faintness. Take a cup of tea and a piece of toast, or a glass of rum and milk before getting out of bed, and that will generally ward off the headache. When you get tired of plain rum and milk try this:—Dissolve in a little hot water over the fire a pinch of the best isinglass, let it cool, and mix a dessert-spoonful of rum with it in a tumbler, and fill up the glass with new milk. This gives a pleasant variety.

ANEURISM.—An aneurism is a tumour containing blood, either formed by the dilatation of an artery, or communicating with an artery. It may occur on any artery in the body, but is more commonly found in the chest in connection with the aorta, the large vessel which carries the blood from the heart. An aortic aneurism may vary much in size, and it may at first be quite small and subsequently increase till it is half as big as the fist. At first it is contained quite in the chest, so that nothing can be seen of it externally, but by-and-by it may press out the ribs or breast-bone, and cause a swelling on the front of the chest as big as an egg or a small orange. At first, too, the symptoms to which it gives rise may be very obscure, and its presence can be detected only by a careful examination by a skilful physician. Afterwards, when it comes nearer the surface of the body, comparatively little difficulty will be experienced in recognising its nature. The great thing is not to mistake it for an abscess. An aneurism has before now been opened on the supposition that it was an abscess, the patient quickly bleeding to death.

Our account of aneurism must of necessity be short, not because it is an unimportant disease, but because it is essentially unsuited for domestic treatment. Anyone who thinks that he has an aneurism should consult a doctor in order that, if it exist, appropriate treatment may be commenced, or that if non-existent the harassing suspicion may be removed. Aneurism occurs most frequently between the ages of thirty and forty. It is met with almost exclusively in men, and especially in individuals whose muscular system is called upon to make sudden, violent,

and intermittent exertions, as for instance in those who habitually lead sedentary lives, but occasionally take a change and indulge in sport, such as hunting, rowing, or a long day's shooting. It is comparatively rare in those whose work, although laborious, is steady and continuous. If you are not over thirty, if your work is moderately uniform in character, or if you are a woman, it is extremely unlikely that you have aneurism, whatever your symptoms may be. It must be remembered that aneurism in any form is not a common complaint, although it occurs more frequently in Great Britain and Ireland than in any other country.

The symptoms to which aneurism in the chest may give rise are very variable, and the majority are common to many complaints. Sometimes they are closely simulated by simple indigestion, and it would be difficult for anyone not a medical man to distinguish between them. Usually when the tumour is large or is increasing rapidly in size, there is some disturbance of the heart's action, and one or both arms become distinctly dropsical. Sometimes the tumour presses on the wind-pipe, causing shortness of breath, or on the gullet, giving rise to difficulty in swallowing; sometimes, in addition to shortness of breath, there is considerable wheezing, and a particularly troublesome cough. Aneurism usually causes pain either in the back or beneath the breast-bone; moreover, it generally affects the pulse, rendering it altogether imperceptible or much weaker on one side than on the other. Sometimes it gives rise to spitting of blood, which may be very profuse. It should be understood that the existence of two or three of these symptoms would be no indication of the existence of aneurism, and that unless several are distinctly present, they are probably due to some other complaint.

Even in such a serious disease as aneurism much may be done in the way of treatment. The agents on which more especially we rely are rest and limited diet. By rest we mean not merely abstinence from hard work, but absolute rest in bed in the recumbent posture. In some cases this has been uninterruptedly maintained for many months, and with the happiest results. Confinement to bed is undoubtedly at first a great hardship to a person who has been accustomed to an active life, but it is wonderful what habit will do, and we have known people, happy, contented, and cheerful under the circumstances. The patient may be allowed to sit up in bed cautiously to take his food, but at other times he will have to remain in the recumbent position. He is in no way debarred from the society of his friends, and may read and be read to,

and although he cannot write his letters himself he may dictate them. Bed-sores must of course be carefully avoided, but they are easily guarded against by a little attention and the daily examination of the back. The diet is restricted to three meals a day taken at regular intervals. Usually it consists of two ounces of white bread-and-butter, with two ounces of cocoa or milk, for breakfast; three ounces of broiled or boiled meat, three ounces of potatoes or bread, and four ounces of water or light claret for dinner; and two ounces of bread-and-butter, and two ounces of milk or tea for supper; in all ten ounces of solid and eight ounces of fluid food in the twenty-four hours. We do not mean to say that these weights and quantities are to be strictly observed, or that every article of food must be weighed, but they serve to indicate about the amount of food that should be taken. The object of this restriction in diet is to lessen the volume of blood, and reduce the activity of the circulation so that a deposit from the blood may take place in the interior of the tumour and so reduce its size.

This dietetic treatment is often combined with the internal administration of iodide of potassium. Five grains (T. 47) may be given three times a day, and gradually the dose may be increased to ten, fifteen, or twenty grains. When palpitation is a prominent symptom the addition of five minims of tincture of aconite (T. 1) to each dose may do good. When the pain is great it may have to be allayed by laudanum, or by hypodermic injections of morphine. When the tumour protrudes on the surface of the body, it should be covered with belladonna plaster spread on leather to protect it from accidental injury.

Should the method of treatment we have indicated fail to effect a cure or alleviate the symptoms, it may be necessary to resort to surgical measures. An electric current passed through the tumour by means we need not describe in detail is often attended with the happiest results. The application of a bag of ice to the tumour for an hour once or twice a day often does good.

Occasionally an aneurism bursts, and then nothing can be done.

ANGINA PECTORIS.—Angina pectoris, or the “suffocative breast-pang,” as it is sometimes called, was first described by the celebrated Dr. Heberden, in the year 1768. The symptoms consist of paroxysms of intense pain about the chest, accompanied by a sensation of impending death. The paroxysm quickly reaches its climax, and is relieved, or disappears entirely, in a few minutes, or at the most within an hour. The

attacks recur at uncertain intervals, sometimes without any obvious cause, at others as the result of exertion. The pain is peculiarly liable to be excited by walking up-hill, or in the face of a strong wind, and then usually ceases immediately on standing still. It is instinctively associated in the mind of the sufferer with the idea of a particularly severe form of oppression or suffocation, or rather with some indefinite sense of impending danger, which is simply indescribable. The patient is not merely suffering, but he feels that the very springs of life are implicated, and that under a prolongation or increase of the pain the whole fabric of life must give way. It is from this sense of impending dissolution, and from the fact that death may occur at any moment, that the disease derives its fearful distinctiveness. The disease is a most serious one, and the services of a medical man—a specialist in this disease if possible—are absolutely necessary. No one is justified in undertaking the treatment of such a case without a thorough knowledge of the subject.

The pain of *angina pectoris* is quite distinct from the fear of impending death to which we have alluded, although they are nearly always associated. Its character will be gathered from a short description of a case which recently came under our care. The patient was thirty-seven years of age, and was a carman by occupation. He was, to the best of his belief, in perfect health until he met with an accident, and was thrown from his van, falling on the left arm. He was not seriously hurt, but was unable to use the limb for nine weeks. At the expiration of that time he resumed his work, and then first experienced the symptoms we are about to describe. He suffered from a severe pain in the chest, which came on in fits, and seized him on the slightest exertion. He could only describe it as "a heavy, dull pain, like a great weight"; and it was often so severe as to make him cry out with anguish. It was always first felt about the middle of the breast-bone, extending on either side as far as the nipple. In a second it would seize his shoulders, which he said seemed as if they were being squeezed with a grasp of iron. It then ran down to the elbows, where it usually ceased: but sometimes extended to the hands and even to the tips of the fingers. The pain was equal in severity in the two limbs, and was never confined to one side. It was more severe in the shoulders and elbows than in any other part of the arms. It always began in the chest, and its direction was never reversed. It never passed through the chest to the back, and never extended to the head and neck or to the legs. During a paroxysm of pain, the arms felt dead and heavy, and the patient had

a difficulty in raising them, the hands at the same time becoming white and shrunken. Such is the usual character of the pain in angina pectoris.

The sensation of impending death to which we have referred is, from its very nature, almost indescribable. Sometimes for the want of a better term it is likened to suffocation; but it is something quite distinct from that. It is this even more than the pain which renders an attack so terribly awful.

These two symptoms coming on in paroxysms, may be said together to constitute angina pectoris. There are other symptoms, but they are of less constant occurrence. Usually the face is deadly pale during an attack, but sometimes we have seen it quite red, so that the sufferer looked just as if he had been inhaling nitrite of amyl. In the case of the man of whom we have been speaking, the face was always flushed at the commencement of an attack, but became deadly pale as the pain increased in severity. The pulse is usually slow and feeble, the breathing short and hurried, and very often the surface of the body is covered with a cold clammy sweat, the intellect remains unimpaired, and even to the last the patient is keenly alive to his frightfully critical condition. In the intervals of the seizures he apparently ails nothing, he looks well, eats well, and were it not for the deadly foe that may attack him at any moment, would be in perfect health.

Let us now consider the circumstances which are likely to induce a paroxysm. In the man to whom we have referred exertion of any kind would always excite an attack. The act of stooping, as in putting on the stockings, or lacing up the boots, or even washing the face, would be almost sure to induce the pain. A sharp turn up and down the room would bring it on; but, contrary to rule, walking up-hill or going up-stairs was not more likely to excite it than exertion on level ground. Coughing always brought on the pain, and once, when the patient happened to catch a little cold on his chest, he displayed the greatest anxiety to get rid of it on this account. He remembered only one occasion on which an attack had seized him at night. Excitement of any kind would induce a paroxysm, so that, as the poor fellow said, he was obliged to be good-tempered, he durst not get in a passion. It may be mentioned in connection with this fact that the great comparative anatomist and physiologist, John Hunter, who suffered from this complaint, was deeply sensible of the risk to which he was exposed by an uncontrollable temper, and was accustomed to say that his life was in the hands of any rascal who chose to tease and annoy him.

In our patient the attacks always came on without warning. They gradually increased in intensity, reached their acme, and then gradually passed off. When the pain seized him he was afraid to move; if in the streets he stood quite still, supporting himself by the railings, or anything that might be at hand. If sitting or lying down, he would make an effort to stand up, as the pain was less severe when in the upright position. He was always able to speak, even during the most violent paroxysms, but he preferred not to, as it often increased the pain. The average duration of an attack was with him about a quarter of an hour, but it varied from six or seven to twenty minutes. He stated that he had often stood in the street for over twenty minutes, afraid to move a step. During these attacks he suffered from a little shortness of breath, but not enough to cause him any inconvenience. He added that the termination of a paroxysm was always preceded by an attack of palpitation. As soon as the palpitation commenced, the pain decreased in severity, and in a few minutes passed off. During the paroxysms the patient had often been given hot spirits and water by anxious friends and bystanders, but it never cut short the attack.

So little is positively known about the real cause or nature of angina pectoris, that it is not worth while discussing this subject. We may mention, however, that in many cases where death has occurred suddenly during an attack, the heart has been found perfectly healthy. Angina pectoris predominates vastly in men, the disease in women being a rarity. It is rare before the fiftieth year, excessively so before the fortieth, and unknown in infancy and childhood. It is very much more common in the upper classes of society than in the middle or lower. It is said by some writers never to occur among the poor, but this is certainly not true, for we have met with at least half a dozen well-marked instances in the wards or out-patient rooms of a metropolitan hospital.

It is doubtful what part, if any, gout plays in facilitating the occurrence of angina. The disease of necessity often occurs in gouty people, because gouty, like anginal sufferers, are usually elderly men of the well-to-do classes. It has been supposed that in some cases the excessive use of tobacco has promoted the development of the disease, but this, to say the least of it, is problematic.

There is, unfortunately, no difficulty in recognising the occurrence of angina pectoris; its symptoms are only too well marked to admit of any doubt as to their nature. The intensity and situation of the pain, and the attendant dread of impending death, at once declare the character of the disease. Asthma is almost the only other complaint which comes

on in such sudden paroxysms, and for this it could hardly be mistaken. Sometimes over-eating, indigestion, and flatulent distension of the stomach may simulate angina, but there is never that frightful fear of sudden death which is so essentially a symptom of the real disease. Moreover, these symptoms often occur in people under forty years of age, in whom, as we have seen, true angina is rare.

Respecting the duration of the disease the greatest diversity occurs. Life may be prolonged for years after the first seizure, in spite of more or less frequent recurrence. In the generality of instances, the complaint undoubtedly runs a somewhat protracted course. At the same time, it is only right that we should say, and say most distinctly, that the life of a man who has had an unmistakable attack of angina pectoris is not insurably safe for a single hour; he may live for twenty years, or he may die to-morrow. He should recognise the possibility of a sudden cessation of his troubles, and should put his worldly affairs in order. People often procrastinate in the matter of making their wills, but a man with angina pectoris must never put it off even for a day. The cardinal fact of the disease is its uncertainty. Death may occur with startling suddenness. Such was the end of John Hunter. The mode of its occurrence is well known, and there is reason to think that it was almost foreseen by him. A dispute of a painful nature had embittered his relations with the governors of St. George's Hospital. On the 16th of October, 1793, he determined to be present at a meeting, at which, however, he apprehended a personal dispute. He expressed to a friend his fear that such an encounter might be fatal to him; but went nevertheless. Something that he said in the board-room was noticed and flatly contradicted. He stopped, left the room in silent rage, and had just time to reach an adjacent apartment, when he gave a deep groan and fell down dead.

Have we any remedy for this fearful affection? Yes; during the last few years a remedy has been discovered which is almost a specific, and that remedy is nitrite of amyl. It is a pale straw-coloured liquid, having an odour which is likened to that of pine-apple, or more commonly to pear-drops. It is used as an inhalation. A few drops are poured on a piece of lint or pocket-handkerchief, or even into the palm of the hand, placed under the nose, and the vapour inhaled. Until the patient becomes thoroughly familiarised with the action of the drug it is best to use the vaporoles of nitrite of amyl (V. 3) which are easily carried in the pocket and may be employed with perfect safety. The action of the drug is very speedy. It causes flushing of the face, and

almost immediately the pain ceases. It really acts like a charm. At first, a little caution will have to be employed in regulating the quantity, but the sufferer soon becomes accustomed to its use. We know three or four sufferers from angina who always carry a small bottle in the waistcoat pocket. The carman to whom we have so frequently referred has now done so for nearly three years. Although he still suffers from his attacks he has been able to resume his occupation. When he is on the box driving, and he experiences the onset of the pain, he pulls out the bottle and takes one long sniff, and is all right again. On one occasion when in the country he broke his bottle. He fortunately managed to save a few drops, and with this to help him on his way, he at once started off to London to obtain a fresh supply. Nothing would induce him to be without it; it is more than gold to him—it is life itself. When he has the amyl in his possession he feels perfectly safe. So confident is he of its power to cut short an attack that he has no hesitation in stooping down and inducing the pain, if requested to do so. The nitrite of amyl has for him robbed the disease of half its terrors. This case is not an isolated one.

A medical man residing at Torquay who had long suffered from angina pectoris, in describing the relief he obtained from nitrite of amyl, says:—"The result of the first trial of five drops inhaled during a severe attack in the night was truly wonderful. The spasm was, as it were, strangled at its birth. It certainly did not last *two* minutes, instead of the old weary *twenty*. And so it continued. The frequency of the paroxysms was not diminished for some time, but then they were *bagatelles* as compared with their predecessors. Under these improved circumstances strength gradually returned, the attacks became gradually less and less frequent, and finally ceased." After this striking testimony we need say nothing more in favour of this truly marvellous remedy. We have had many opportunities of closely observing its effects, and entertain not the slightest doubt of its efficacy. Nitrite of amyl is now a pharmacopœal drug, and no difficulty will be experienced in obtaining it. Many chemists keep little glass capsules, each containing enough for a single inhalation. Half a dozen may be carried in the waistcoat pocket, and on the onset of an attack one may be placed in a handkerchief and broken. They have the advantage of being portable, and with them it is impossible to use more than the prescribed quantity, but usually the patient prefers having the bottle.

Another most valuable remedy for angina pectoris is nitro-glycerine, or trinitrine, as it is sometimes called. This powerful explosive may be

used in small doses for medicinal purposes with perfect safety. The nitro-glycerine mixture (Pr. 100) is made by adding a tea-spoonful of a 1 per cent. solution of nitro-glycerine in spirit to eight ounces—an ordinary medicine bottleful—of water. Of this a tea-spoonful should be taken every four hours, with an extra dose immediately an attack is felt coming on. The dose may be gradually increased to a table-spoonful or more if necessary. It may produce a little headache, but this is very transitory, and rarely causes any inconvenience. The sufferer should carry a little bottle of the mixture about with him, so as to have it at hand in case of need. Nitro-glycerine may also be obtained in tabloids (T. 55), each containing a hundredth of a grain, corresponding to a tea-spoonful of the mixture. One or more should be crushed in the mouth, so as to get the full action of the drug as quickly as possible. The compound trinitrine tabloids (T. 56) are still more useful, but should be employed only under medical advice. These preparations of nitro-glycerine may be kept with perfect safety.

But should an attack come on suddenly when there is no remedy at hand, what are we to do? Probably the best thing is to give a tea-spoonful of *sal volatile*, or half a tea-spoonful of chloric ether, in a wine-glassful of water, or the two combined, with perhaps the addition of a little bicarbonate of potash or soda. In a case like this, one naturally feels inclined to give a glass of hot gin or brandy and water, but it seldom does much good; the pain seems to be too great to be under its control. The hands and feet should be briskly rubbed if they are cold or pallid. You should send for a small bottle of nitrite of amyl as soon as possible, so as to be prepared for any future attack, but a medical man should be called in at once.

What should be done in the intervals of the attacks? The general health should be improved by every means in our power, and the greatest care be taken to avoid worry and excitement of all kinds. Tranquillity both of body and mind, and the suspension of all occupations, and even amusements, tending to excite the heart or hurry the breathing, is essential. Moderate daily exercise on level ground, and only to such an extent as is requisite for preserving the bodily health, and for ensuring good digestion; the avoidance of all kinds of food tending to flatulence; and the regular but strictly moderate evacuation of the bowels, either spontaneously or by the mildest laxatives, are measures to which too much importance cannot be attached. If stimulants are used at all they should be employed in the very strictest moderation, none but the lighter wines being taken. Whether smoking should be altogether abandoned or not

we cannot say, for really every man is the best judge of his own sensations, but it is obvious that excess in this, *as in everything else*, must be strictly avoided. It must be always borne in mind that what might be a moderate allowance for a healthy man, would be a debauch for a person in the critical condition of an anginal subject. We have simply laid down the broad rules for the guidance of the sufferer, and can do no more. They may have to be modified in individual cases. A person who has long suffered from a complaint of this description soon finds out what agrees with him best, and knows better than any doctor can tell him. People are not all alike in illness, any more than in health, and an article of diet which may agree admirably with one person might half kill another. We have, as we have said, laid down the broad rules; the details must rest with the patient himself.

When gout or dyspepsia occurs concurrently with the paroxysms, or in the intervals of the attacks, it should be treated by the appropriate remedies (GOUT; INDIGESTION), and the removal of the complication may be followed by the alleviation or cure of the attacks themselves. It is generally considered that gouty angina is more amenable to treatment than any other form. A visit to Carlsbad, or Vichy, or Bath, may be attended with benefit should the patient's means allow him to travel under favourable conditions as regards freedom from hurry and excitement. Should the angina be associated with neuralgia, the different remedies recommended for that complaint may do good (NEURALGIA); in fact, by some eminent authorities it is supposed that angina pectoris is essentially a neuralgia itself. In these cases the administration of arsenic (T. 7) is often attended with marked benefit. When anæmia is a prominent symptom, it should be removed by the judicious use of iron (T. 15, 38, 65). Phosphorus has been recommended in angina pectoris, and should be taken in the form of the elixoid, a tea-spoonful in water three times a day.

APHASIA.—By aphasia is meant loss or impairment of the faculty of language. It is quite a different thing from an affection of the voice. It is a brain disease, and there is nothing wrong with the throat, or larynx. Sometimes there is a loss only of the faculty of articulate language, but more frequently there is likewise an inability to express the thoughts by writing or by gestures. There is loss, not only of the memory of words, but also of those acts by which these words are articulated.

This curious condition is a form of paralysis, and is not infrequently the result of a "stroke." It is very generally associated with some other form of paralysis, and more especially with loss of power in the right arm and leg. The faculty of language is supposed to be situated exclusively in the left half of the brain, and it is well known that injury or disease of one side of the brain results in paralysis of the opposite side of the body. This readily accounts for the frequent association of aphasia with paralysis of the right side, for they would both be caused by some affection of the left half of the brain.

A patient who is suffering from aphasia, or who, as we say, is aphasic, may present several different manifestations of his complaint. He may be altogether wordless, or may utter inarticulate sounds, or mere unmeaning gabble. He may use to express all his wishes only one or two familiar words, such as "yes" or "no," or perhaps both of them. For example, a young lady who became aphasic could for a long time say nothing but "oh, no," "papa," and "Bob." The case, too, is related of a young man, twenty-five years of age, who was attacked with aphasia and paralysis of the right side. In time some power of moving the right leg, and then the right arm returned, but he could articulate only two words, "no" and "mamma." "What is your name?"—"Mamma"; "What is your age?"—"Mamma, no." He was unable to say anything else, but yet was perfectly aware that his reply was incorrect. Sometimes all the aphasic patient can do is to utter some word or sound that has no intelligible meaning. Sometimes he has an almost unlimited flow of words, and yet may be unable to use them to express his desires or wishes. The mother-in-law of a medical man had an attack of aphasia. Whenever a visitor entered her room she rose from her chair with an amiable look, and, pointing to a seat, exclaimed, "Pig animal, stupid fool." She did not in the least understand the meaning of these insulting expressions, and her son-in-law had to explain her wishes.

The patient often substitutes one word for another in a manner which would be intensely amusing were it not for the knowledge that it is the result of brain disease. Sometimes he uses instead of the right word some other that somewhat resembles it in sound; thus, for example, he may say "pamphlet" for "camphor," "dispersion" for "dispensary," and so on. Sometimes he substitutes some word which has an obvious connection or association with that he wishes to express, as "breakfast" for "supper," or "toast" for "hot." He may invert the whole of a word, and say "mug" for "gun," for example; or may roughly invert certain syllables, like the man who always said "gippin" for "pigeon."

It has been remarked that, curiously enough, it is only individual words that are misplaced, or mispronounced, and that the grammatical framework of the sentence seldom suffers. It has been noticed, too, that substantives only are substituted for substantives, verbs for verbs, numerals for numerals, and proper names for proper names. The words with which the greatest difficulty is experienced are usually nouns.

Sometimes a patient when aphasic may repeat everything that is said to him, and never say a word besides. A curious circumstance is that under strong emotion or excitement a patient may be able to swear, although at other times he cannot utter a word. Swearing is with many people almost an involuntary act, and it is remarkable that disease should draw a line between the emotions and the intellect, between signs of feelings and signs of ideas. Another fact worth mentioning is that aphasic persons who cannot talk can often sing quite correctly.

Certain aphasic patients can write, while others fail to do so; those who are capable of the act occasionally write sense, frequently nonsense, but more frequently either unintelligible characters, or distinct but unconnected words. Sometimes the patient may be able to copy manuscript, or even to convert printed sentences into ordinary writing, when he could not write the same words if dictated to him. Curiously enough, an aphasic who is unable otherwise to write will often readily sign his own name. Some aphasics can point out letters that are named to them, whilst others fail to do so. If they be given a children's bone or wooden alphabet, they make curious attempts to spell a word, and often enough can achieve no more than a dim yet perceptible resemblance to it. Thus a man named James Simmonds put together the letters JICMNOS in a vain attempt to represent his own name.

As a rule, in aphasia there is some impairment of intelligence, but usually it is not very great. The aphasic recognises his friends, remembers where he lives, and can often play correctly at cards, backgammon, dominoes, or any game of skill or chance with which he may be acquainted. He is not only able to play his own game, but is quite capable of cheating, should he be desirous of so doing. The case is recorded of a Russian gentleman resident in Paris, who spoke French like a native, yet after an attack of aphasia he was unable to utter a word of that language. When questioned, he smiled and said "Da," a Russian word meaning "Yes." He was unable to construct even part of a sentence in his own language. When shown a spoon he could make signs showing its use, yet had forgotten its name both in Russian and

French. Nevertheless, he could play at whist correctly, and noticed any errors of his adversary by making a gesture.

With regard to the general symptoms of aphasia, we should state that usually the deprivation of speech occurs suddenly. Perhaps in a short time two or three words can be uttered, which, as we have seen, are then used in reply to all questions. The face is intelligent, and the movements of the lips and tongue and palate are in no way interfered with. In cases in which aphasia is not accompanied by paralysis of the limbs, recovery often occurs quite suddenly. It is believed by many that transitory attacks of aphasia are by no means uncommon.

There is very little difficulty in recognising the existence of aphasia. Hysterical women sometimes pretend that they are unable to speak, but here the most superficial examination will detect the real nature of the complaint. Impostors sometimes pretend that they have suddenly lost their voice. We should suspect a person if he could not speak, and yet could swallow and write well. The impostor nearly always pretends to be absolutely dumb, and seldom knows enough about his pretended complaint to see the necessity of uttering some word or word-like syllable, as the true aphasic nearly always does. This reminds us of the case of a soldier who, with the view of obtaining his discharge, pretended that he had been suddenly struck dumb. He was taken to the doctor, who at once suspected the real nature of the case. The man was told to try to say "Ah," it being explained to him that he would have no difficulty, as it was "a purely laryngeal sound, unconnected with the faculty of language." The effort was successful. He was then told to say "No," which, it was explained, was "a sound of similar character." Not seeing the trap, he promptly replied as directed, "No." "Well, my friend," said the doctor, "if you can say 'No' you can say anything; so good day."

Respecting the duration of an attack of aphasia we can say nothing definitely—it may last only a few hours, or many months. An attack, as a rule, indicates no immediate danger, but a medical man should be called in without delay.

APOPLEXY.—When a person falls down suddenly, and lies without sense or motion, except that his pulse keeps beating and his breathing continues, he is said to have been attacked with apoplexy, or to have had a "stroke." He appears to be in a deep sleep, but it would be impossible to awaken him by the same means which would rouse a healthy

man. He is not in a simple faint, for his pulse beats perhaps with unnatural force, and often his face, instead of being pale, is flushed, and his breathing continues, although it may be laboured and noisy. The cause of this condition is usually the rupture of a blood-vessel in the brain, and the consequent pouring out of blood which ensues. Anything tending to produce congestion of the head favours the occurrence of apoplexy. It often follows a fit of passion or excitement, or some unusual act of exertion.

We all recognise the fact that certain people are likely subjects to become apoplectic. A seizure is most likely to occur in those whose parents suffered in the same way; in men and women of sedentary habits, accustomed to high living, with protuberant bellies, large heads, florid features, and short thick necks; in individuals above fifty, and those who are addicted to habits of intemperance. Bright's disease of the kidney also favours the occurrence of an attack. It is probable that in almost all cases in which a man has had a stroke, the blood-vessels of the brain have been weakened or rendered brittle by degeneration.

This dreadful visitation is seldom experienced without some warning, which, properly interpreted, should put the patient on his guard. These are usually fugitive attacks of congestion of the head, indicated by mental confusion and dulness, a feeling of heat about the head, with coldness of the hands and feet, and a diminished secretion of urine, with constipation. Among suspicious signs may be enumerated—headache and giddiness, experienced principally on stooping; a feeling of weight or fulness in the head, with roaring noises in the ears and temporary deafness; dimness of sight or double vision; bleeding from the nose, with fits of nausea and sluggishness of the bowels; a loss of elasticity in walking, with numbness or a sense of pins and needles in the feet, or a feeling as if there were some foreign body in the boot; loss of memory, great mental depression, and peevishness or irritability of temper, or the use of wrong words in talking; and drowsiness with heavy sleep, and a tendency to dreaming or nightmare. Any one of these symptoms occurring singly would probably be of little significance; but a combination of them in a person who is a likely subject for apoplexy should be regarded as a warning.

An apoplectic seizure may commence in several different ways. Sometimes the patient falls down suddenly, deprived of sense and motion, and lies like a person in a deep sleep—his face flushed, his breathing laboured, and his pulse full and usually less frequent than natural.

There may be convulsions or contraction of the muscles of the limbs, often confined to one side. Sometimes insensibility is not the earliest symptom; the attack begins with a sudden sharp pain in the head, the patient becomes pale and faint, and usually vomits. He may, perhaps, fall down in a state of insensibility, with a bloodless and cold skin and a feeble pulse. This may be accompanied by convulsions. Very often he does not fall down, the sudden attack of pain being accompanied only by slight and transient confusion. In either case he commonly recovers in a short time from these symptoms, and is quite sensible and able to walk, but the headache continues. After a certain interval—varying from a few minutes to several hours—he becomes heavy, forgetful, and incoherent, and sinks into a state of insensibility, from which he never emerges. Sometimes the seizure begins by an abrupt attack of paralysis of one side of the body, often with loss of speech, but no diminution of consciousness. The paralysis may pass gradually into apoplexy, or may remain without further urgent symptoms, or in certain favourable cases may slowly pass off, and the patient recovers. Such are the different modes in which apoplexy makes its appearance. It may be painful to have to consider the details so minutely, but it must be done, or there is danger of overlooking the real nature of the attack.

When the apoplectic state is fully formed—in whatever manner the attack may have commenced—the patient lies totally unconscious of all that may be going on about him. He replies to no questions, he is unmoved by the cries and lamentations of his family, and, in fact, does not hear them. The pulse is at first slow and almost imperceptible, but becomes quicker and stronger as the system recovers from the prostrating shock, although it usually remains less frequent than natural, and is sometimes irregular. The breathing is peculiar, being slow and interrupted or irregular, and attended with a snoring noise, and a puffing out of the cheeks like a person smoking a pipe. There is frothy saliva about the mouth, and the body is covered with a cold clammy sweat. The face is pale, the eyes are dull and glassy, the pupils are commonly neither much contracted nor much dilated, but very often they are unequal in size. The teeth are clenched, all power of swallowing is lost, and if you put fluids in the mouth they run out again at the corners of the lips. The limbs lie motionless, and if you raise one of them it falls passively down again when you leave it, like a dead limb. Sometimes they are stiff and rigid, or they may be convulsed. The bowels are usually torpid; or, if they act, the motions are passed in bed, without

the patient's knowledge or concern. The urine flows involuntarily, or is retained in the distended bladder until it overflows and dribbles away perpetually.

It is often a very difficult matter to say whether a person is suffering from apoplexy, or is stupefied by a large dose of opium, or is merely dead drunk. It is very important to make the distinction, as much depends on the treatment, but it is far from easy. In many cases a personal knowledge of the general habits of the sufferer will at once solve the question, but with a stranger it is sometimes almost impossible to decide. The insensibility is profound in each case, although arising from so different a cause. If any one-sided symptoms are noticed—if, for instance, one pupil is larger than the other, or if there are twitchings of the arms or legs on one side only—it is to be feared that it is apoplexy. If the patient can be roused even for a moment or two, so as to give intelligent replies to questions, he is probably suffering from opium-poisoning or is drunk. His general appearance and age may assist you in solving your doubts. You must inquire whether he is known to have been drinking; you must try if you can perceive the odour of wine or spirit in the breath; and you should endeavour to make out from his friends whether he has been low-spirited, or in difficulties, or is a likely person to have taken poison.

Even when the odour of drink is distinctly appreciable too much reliance must not be placed on it, because a man who has been drinking may be seized with apoplexy. A story is told which illustrates forcibly the curious circumstances under which one may be called upon to distinguish between apoplexy and drunkenness, and the difficulties that may be experienced in making the diagnosis. Some years ago a doctor living in Edinburgh was called out late one evening to visit an old gentleman of that city. He found him completely insensible, his wife crying, and the whole family plunged in grief and distress. He was told that the patient whom he now saw in a fit had come home, and upon the servants opening the door to him, had fallen into the passage on his back in a state of insensibility. The doctor learned, however, that he had been at the club, and he knew well enough that the club was composed of choice spirits, fond of their cups, although the gentleman's wife did not know so much. He therefore ventured to express a hope to the wife that her husband was only drunk, a view of the case at which she was extremely affronted and indignant. He persisted in his opinion, and not long afterwards the patient began to recover his senses. It turned out that he had partaken more liberally

than the rest of the club, and was the first to be intoxicated. Two of his companions carried him home quite incapable of motion, but not liking to introduce themselves to his wife in that predicament, they placed him with his back against the door, rang the bell, and decamped. Of course, when the servant came to open the door his master tumbled senseless on the floor. The doctor certainly deserved some credit for the cleverness of his diagnosis, for much harm might have resulted if the patient had been treated energetically for apoplexy.

On the other hand, so many cases of apoplexy occurring in the streets have been mistaken for intoxication, that it should be a strict rule that no person found insensible by the police should be placed in a cell until an examination has been made by the doctor. It frequently appears at the inquest that what was supposed to be drunkenness was in reality apoplexy. Even putting aside the question of treatment, the feelings of the relatives surely deserve some consideration, for it must be no small aggravation of their grief to find that one whom they loved and cherished was locked up on a charge of drunkenness.

An apoplectic seizure may terminate in any one of the three different ways. Either it gradually passes off, leaving the patient apparently none the worse for the stroke; or it terminates in incomplete recovery, the mind being impaired and some parts of the body paralysed; or it ends in death. In any individual case it is very difficult to say what the result will be. An attack of this kind is always replete with danger, the severity of which may to some extent be estimated by the depth of the insensibility, the degree of prostration, and the difficulty in swallowing. There is a very common opinion that a person suffers from three different attacks of apoplexy, the first being mild, the second resulting in paralysis, and the third terminating fatally. This is not literally true, but undoubtedly the danger greatly increases with every successive attack. In fatal cases death very rarely occurs immediately, as it may do from heart disease, or the rupture of an aneurism, or a broken neck. There is almost always an interval of some hours, so that there is time to send for the friends or relatives, unless they live at a great distance. In favourable cases, even when partial recovery has taken place, there is still a fear, especially during the first fortnight, that there may be a recurrence of the bleeding in the brain, or that the clot will set up inflammation. When the symptoms gradually diminish there is, in the first place, a recovery of mental power. For a time this may be imperfect, so that the patient is childish, his memory is impaired, and he experiences a difficulty in expressing his wants in appropriate language.

This soon passes off, there being simultaneously an improvement in the condition of the limbs, the capability of movement appearing first in the arm and then in the leg of the paralysed side.

What are you to do when a person is suddenly struck down with apoplexy? In the first place, send for the doctor and say what is the matter. Undo the things about the neck, especially the shirt-collar and necktie. Have the windows opened, so as to admit plenty of fresh air and cool the room. Place the patient in an easy-chair, and let him remain in a half-recumbent position, or put him on the bed or on the floor, with his head well supported. The less he is moved the better, but take care to see that the head is raised. Sponge the head with the coldest water you can get, and send for ice. When the ice comes, put it in a bag and apply it to the head, cutting short the hair if long. It is necessary to have the bowels opened, and as the patient cannot swallow put three drops of croton oil right at the back of the tongue, when it will run down. You will have no difficulty in doing this, and can use the end of a pen or a little brush if necessary. Apply mustard-poultices or menthol plasters to the calves of the legs. Keep the patient absolutely quiet. This is all that is to be done; in fact, the danger is of doing too much rather than of not enough.

After what we have said, we need hardly remind you of the absolute necessity of making sure that the patient is in reality suffering from apoplexy, and not from opium-poisoning or drink. In former days a man who had a stroke was always bled. Nowadays it is a mode of treatment which is seldom resorted to. There are a few cases in which it might do good, but this is a point you must leave to your doctor. Blisters applied to the scalp or back of the neck are, as a rule, to be avoided. When the urine is not passed for some hours a catheter will have to be employed to draw it off. Supposing the patient to recover from the fit, great care will be required to prevent a second attack. People who have a predisposition to apoplexy should carefully avoid excessive exertion, violent mental emotion, over-indulgence in eating or drinking, exposure to extremes of temperature, straining at stool, long-continued stooping, tight collars or neckties, and very warm baths. It is a good plan to take a dose of Hashra tea every night at bed-time so as to secure a gentle action of the bowels the first thing in the morning. The actual quantity needed for this purpose will depend on individual peculiarities. By infusing the herb for five minutes a mild or moderate action is secured, whilst by letting it stand for half an hour a more pronounced effect is secured. It is important to observe a

moderately spare diet, which should be almost free from alcoholic drinks. Heavy meals at long intervals are to be particularly avoided. Sleep should be sought, with the head high, on a mattress, rather than on a feather bed, in a cool, well-ventilated room, and for not more than eight hours out of the twenty-four. Daily exercise should be taken in the open air, but over-fatigue should be avoided. The bowels should be carefully attended to (T. 3), and constipation at once removed. It is a good plan to wash the head every morning in cold water. When there is giddiness or headache, or a feeling of fulness or throbbing about the head, a purge (T. 51 or 25) will do good. The general health should be carefully supported, and should the patient get below par, iron (T. 38) or quinine (T. 63) may be given with advantage.

ASTHMA.—Spasmodic asthma is such a common complaint that we need offer no apology for entering somewhat fully into its consideration. Not only is it a common disease, but it is one of the direst suffering, the horrors of an attack far exceeding any acute bodily pain. With a face expressive of the most intense agony, unable to speak, move, or even make a sign; the chest distended and fixed; the head thrown back between the elevated shoulders; the sinews rigid and stiff, like cords, tugging and straining with every breath—the patient struggles with his overpowering foe. Even in the intervals of the attacks his sufferings do not cease; he is not a free man; he goes about, it is true, like his fellows, and among them, but he knows he is altogether different—he is not sure of himself even for an hour; he can never make an engagement without a proviso; from many of the occupations of life he is cut off; and in many of its enjoyments and indulgences he dare not join; his life is marred, his existence is crippled, and he knows that a large proportion of his days are destined to be spent in the severest suffering. Not only is asthma superlatively distressing, but it is proverbially intractable; the asthmatic must be regarded as an asthmatic for life, as one for whom medicine may do much, but of whose ultimate restoration to perfect health there is very little hope.

We have no intention of entering into a discussion as to the nature of asthma. Nowadays it is usually regarded as a purely nervous affection—as a disease, that is, of the nervous system—and there are many circumstances that favour this view. We know that with many people the exciting cause of an attack is often something affecting the nervous system, something that with others would give rise to symptoms

acknowledged on all hands to be of nervous origin. For example, fatigue and physical exhaustion, and sudden or violent mental emotion, will, in many people, at once excite an attack. The case is recorded of a gentleman in whom a very severe fit of asthma was induced by his having, as he imagined, accidentally given his wife an over-dose of medicine. In another instance mental emotion was, on the other hand, equally efficacious in cutting short an attack. A gentleman, a confirmed asthmatic, was suffering from an unusually bad attack of his complaint—so bad, indeed, that he was unable to move from his chair, or even to speak, except in monosyllables. He had been suffering all day, and in the evening his sister was on the point of giving him some ipecacuanha as an emetic, when she went off into hysterics, to the occurrence of which she was subject. The suddenness of the attack so alarmed the brother that he sprang from his chair, reeled to her assistance, and having placed her in a more comfortable position, ran down two flights of stairs to procure the restoratives that were usually administered. He then rushed up-stairs again; and having applied the remedies, was delighted to find that his own attack had quite left him, and that he was breathing as freely as ever he was in his life. The asthma, however, gradually returned, and within an hour he was as bad as ever. Again, in illustration of the influence of mental emotion on asthma, we may mention the case of a patient who stated that when a little boy he found his disease a convenient immunity from correction. “Don’t scold me,” he would say, if he had incurred his father’s displeasure, “or I shall have asthma”; and so he would, as his fears were as well founded as they were at times convenient. A doctor recently stated that he had had patients come to him who lost their asthma the moment they entered his house to consult him. Suddenly the difficulty of breathing had vanished, without any apparent cause, except the mental perturbation at being within the precincts of the physician. We see just the same thing in the toothache: the sight of the dentist’s house will often cure it. As an argument in favour of the nervous origin of asthma, we may point out that many of its most popular remedies are such as act on the nervous system; tobacco and stramonium, for instance. Perhaps the effect of chloroform is, of all remedies, the most striking, and at the same time the most illustrative of the purely nervous nature of the affection: a whiff or two, and the asthma is gone; a dyspnoea that a few seconds before seemed to threaten life is replaced by a breathing calm and tranquil.

The precursory symptoms of a fit of asthma vary greatly in different

individuals; some people never experience any, but having been guilty of some imprudence, or the regular period of an attack having recurred, they are seized suddenly with shortness of breath. The majority of asthmatics, however, do know when an attack is coming on by certain peculiar sensations. These symptoms generally present themselves on the night previous to the attack, but in some cases a longer time before. Some people feel very drowsy and sleepy, and are unable to keep their eyes open, and that without having undergone any particular fatigue, or done anything to account for it. Others, again, know by extreme wakefulness and unusual mental activity and buoyancy of spirits that a paroxysm awaits them. At other times the precursory symptoms are connected with the stomach, and consist of loss of appetite, flatulence, costiveness, and certain peculiar uneasy sensations at the pit of the stomach. Many people at the onset of an attack pass large quantities of clear pale urine, almost like water.

Of all the circumstances attending the commencement of an asthma attack, none are more constant than the time of its occurrence. This is almost invariably in the early morning, between three and six. In some cases the usual time is the evening; in some just after getting into bed or going to sleep; whilst in others there is no particular time at all, the attack coming on at any hour of the day or night, on the occurrence of some particular exciting cause, such as a fit of laughter, or an over-distended stomach. In the large majority of cases, however, the shortness of breath first declares itself on the patient waking in the morning, or rather in waking him from his sleep when he has had but half a night's rest. There are probably two reasons for the attack coming on at this time: one being the horizontal position of the body, and the other the greater readiness with which sources of irritation act during sleep. That the position of the body tends to induce the attack we know, because an extra pillow may prevent it. Some asthmatics dare not go to sleep after the commission of any imprudence in eating or drinking, whereas they may be guilty of any irregularity with impunity provided they only keep awake for some time afterwards. In one case, for example, an asthmatic would often sit up half the night after taking supper, because he knew that if he went to sleep his asthma would come on immediately, but by waiting till the supper was fairly digested, the stomach empty, and the source of irritation removed, he might go to sleep fearlessly, and have a good night's rest.

A curious circumstance with regard to the time of the attack is that it varies according to the intensity of the cause; the more intense

the source of irritation, the shorter the sleep before the asthma puts a stop to it. We are told of an asthmatic who was always awoke by his disease with an earliness proportionate to the size of the supper he had taken. Certain airs disagreed with him just as did food before sleeping; and if the two causes acted conjointly he would wake with asthma much earlier than if they acted singly. Thus, if he went to a place that did not agree with him, he might wake about five o'clock with his asthma, and the same if he ate supper in a place that did agree with him; but if he took supper whilst staying at a place that did not agree with him, he would get no sleep after two or three o'clock. In many cases it would appear that this morning occurrence of asthma is an essential feature, and is not dependent on external circumstances. This peculiarity was noticed in an asthmatic night-porter, whose duties compelled him to turn night into day. He went to bed at seven o'clock in the morning, and slept till one or two. But although the ordinary time of sleeping and waking were thus transposed, the asthma came on at the usual hour, from five to six in the morning, towards the end of his vigil, and when he was awake.

We must now consider the phenomena which characterise an attack of asthma. For the following description, as for many of the statements contained in this article, we are indebted chiefly to a medical writer who was himself a great sufferer from this complaint. The patient goes to bed in his usual health, with or without premonitory symptoms: he goes to sleep, and sleeps for two or three hours; he then becomes distressed in his breathing, and dreams perhaps that he is under some circumstance that makes his respiration difficult. While yet asleep, the characteristic wheezing commences, often to such an extent as to sound as if a whole orchestra of fiddles were tuning in the chest, and to make so much disturbance as to arouse those in the same or an adjoining room. The patient half wakes up, and changes his position, by which he gets a little ease, and then falls asleep again, but only to have his distress and dreams renewed, and again partially to wake and turn. Shortly, the increasing difficulty quite wakes him, but only perhaps for a minute or two; he sits up in bed with a distressing half-consciousness of his condition, gets a temporary abatement, sleep overpowers him, and he falls back, to be again awoke, and to again sit up; and so the miserable fight between asthma and sleep may go on for an hour or more, the dyspnœa arousing the sufferer as soon as sleep is fairly established, and sleep again overpowering him as soon as the wakefulness and change of position have a little abated the extremity of his sufferings.

By-and-by the struggle ceases, and sleep is no longer possible; the increasing shortness of breath will not allow the patient to forget himself for a moment; he becomes wide awake, sits up in bed to lie down no more, throws himself forward, plants his elbows on his knees, and with fixed head and elevated shoulders labours for his breath like a dying man.

When once the paroxysm is established, the asthmatic offers a very striking and very distressing spectacle. If he moves at all, it is with great difficulty, creeping by stages from one piece of furniture to another. But most commonly he sits fixed in a chair, immovable, unable to speak, or even perhaps to move his head, in answer to questions that may be put to him. His back is rounded, and his gait stooping; indeed, his whole figure is deformed. His chest, back, and shoulders are fixed; he cannot even turn his head from side to side, so that when he looks from object to object he merely moves his eyes, like a person with a stiff neck; his shoulders are raised to his ears, and his head thrown back and buried between them. In order the better to raise his shoulders, and at the same time to spare muscular effort in so doing, his elbows are fixed on the arms of his chair, or his hands planted on his knees; or he leans forward on a table, or sits across a chair, and leans over the back of it; or he stands grasping the back of a chair, and throwing his weight upon it; or leaning against a chest of drawers, or some piece of furniture sufficiently high to rest his elbows on in a standing position. At every breath his head is thrown back, his shoulders still more raised, and his mouth a little opened, with a gasping movement; his expression is anxious and distressed; the eyes are wide open, sometimes strained, turgid, and suffused; his face is pallid, and perhaps slightly blue; the labour of breathing is such that beads of perspiration stand on his forehead, or even run in drops down his face. He is so engrossed with his sufferings and the labour of breathing, that he seems unconscious of what is going on around him; or else he is impatient and intolerant of the assiduities of those who are in vain trying to give him some relief.

During the attack, the heat of the body falls, and the extremities become cold, blue, and shrunken. At the same time, the perspiration produced by the violent efforts at respiration may be very profuse. It is this union of coldness and sweating, combined with the duskiness and pallor of the skin, that gives to the asthmatic so much the appearance of a dying man. The pulse during a severe attack is always small, and is sometimes so feeble that it can hardly be felt.

The length of time required for an attack to attain its maximum intensity differs much in different cases. In some, within a quarter of an hour of the first seizure the patient seems almost at the point of death; in others, the shortness of breath creeps slowly on, getting deeper and deeper for hours. The time that it lasts, too, varies greatly—from a few minutes to many days. It is very rarely that it remains long at its state of greatest intensity; in an hour or two the severity of the paroxysm gives way, and, even should it not completely disappear, the patient experiences a sense of inexpressible relief. Sometimes the attacks come on quickly, and as quickly and completely subside, so that in half an hour the whole thing may be over, and the patient as well as ever. This, however, is rarely the case, except as the result of the immediate adoption of remedial measures, as when the patient, on finding the asthma on him, at once gets out of bed, and sits or stands, leaning against some piece of furniture, keeping himself thoroughly awake, or smokes till he feels sick, or takes an emetic. In many cases the attack subsides soon after breakfast, or towards noon; but the patient is fit for nothing for the rest of the day. In others it lasts the entire day, gradually abating towards evening, so that the patient has a good night, and awakes well the next morning. Again, it may get gradually worse as night comes on, so that the second night is worse than the first. In some cases, the onset and departure are alike sudden; in others they are both gradual. There is generally some particular time at which the spasm yields, and the patient passes from a state of agony to a condition of very endurable suffering; he generally knows when this has taken place, and feels that the crisis is over. In some cases, the spasm remains at an unvarying standard, and the sufferer grinds on all day without respite. More commonly, however, he experiences aggravations and abatements, for half an hour or so breathing perhaps as if each breath would be his last, then getting an hour or two's comparative ease, then getting worse again, then better, and so on throughout the day. These aggravations are frequently due to some exciting cause, such as taking food, laughing, or yielding to sleep, against which, therefore, as long as his attack lasts, the asthmatic is obliged most scrupulously to guard himself. Nothing is so certain as food to induce these exacerbations; and, since asthma in no degree interferes with appetite, the enforced starvation to which the patient is reduced becomes an additional source of suffering: fainting with hunger, he dare not let a particle of food pass his lips; and as long as his paroxysm continues, so long must he starve.

When the spasm finally subsides it generally does so coincidently with the first appearance of expectoration. Up to this time the wheezing has been dry, and there has been no cough, or, if any, a short single dry one; the first appearance of loose cough is the harbinger of relief. The expectoration is very often of the consistence of jelly, or thick like arrowroot, of a pale grey colour, occurring in distinct pellets, about the size of a pea.

It is a curious thing that in asthma the paroxysms occur at regular and definite periods. In many instances, this periodicity is most marked; as the period characteristic of the particular case recurs, the attack is predicted with the greatest certainty, and never fails to appear at the right time. Asthma is essentially an engagement-keeping complaint. In the length of the intervals, although in each case it is constant and characteristic, there is the greatest variety. Many of the intervals appear to be arbitrary, and one cannot account for them in any way; but many of them are natural, corresponding to the period of recurrence of certain conditions, either in the external world or within the body. Thus, with many people, an attack of asthma occurs regularly at intervals of a day, a week, a month, or a year. When the asthma is dependent upon the state of digestion, it is common for the attack to appear daily, the patient usually having his fit every afternoon after dinner. When the attack is diurnal, it nearly always depends on some daily-recurring exciting cause. Very often an attack occurs regularly once a week, at the same hour of the same day. The case is recorded of an asthmatic boy, who for years had an attack every Monday morning. On every other day in the week he awoke well; but as sure as Monday morning came round, so surely did his asthma appear. A suspicion arose on the part of his parents that he was shamming, or at any rate making the most of his complaint, to escape school. It was not till this had been going on for a long time that the real cause was discovered. On Sunday evening he took supper, and on other evenings he did not; and the Monday morning's asthma was caused by the supper over-night. On taking supper on other occasions, it was found that asthma invariably followed. He left off the suppers altogether, and the regular Monday morning's asthma at once disappeared. When the attack occurs at monthly intervals, it is usually associated with the menstrual periods, and is not a common form except in women. When asthma occurs at intervals of a year, it is probably either hay-asthma, of which we shall speak in detail in due time, or bronchitic asthma—asthma that is dependent on an attack of bronchitis.

It is a curious circumstance that each attack seems to impart for a time an immunity from a repetition of it. For some time after an attack—the time varying according to the interval characteristic of that particular case—the patient may expose himself to the ordinary exciting causes of the paroxysms without the slightest fear of inducing one. As this period draws to a close, exposure to the provocations of the attack is attended with more or less risk, and when it has transpired the slightest imprudence is certain to bring on a fit.

We must now consider certain points respecting the causes of the disease and its relation to age, sex, and so on. In the first place, is it hereditary? Of this there can be no doubt, and it is said that a disposition to it is transmitted in nearly half the cases. Asthma is a disorder which is incident to both sexes, but it occurs far more commonly in men than in women. The time of life of the first access is very variable. It may make its appearance at any time from the earliest infancy to old age. A few days after birth the infant may give unmistakable signs of it, or the old man after spending a long life without an asthmatic symptom may suddenly become its victim. In cases in which the disease is hereditary it appears at an earlier age than when acquired, a circumstance quite in accordance with what occurs in gout, and many other transmissible diseases.

An attack of asthma may be excited in many different ways. In some people, fog, or smoke, or the fumes of a lucifer match, or of a recently blown-out candle would be quite enough. Ipecacuanha has the curious power of producing an asthmatic attack with some individuals. Then others, as we shall presently see, suffer from a form of asthma produced by the pollen of grasses, and known as “hay-fever.” Certain kinds of air may act as the exciting cause. For instance, a man may be perfectly well so long as he remains in town, but suffer from asthma immediately on going into the country. It is by no means uncommon to find that an asthmatic can breathe perfectly well in one place, while in another he would be almost suffocated. There is a special form of asthma, called “peptic asthma,” which always supervenes on a full meal, and is produced by nothing else. Cases of asthma are often met with in which no exciting cause of the attacks can be detected. They come on at a certain time, but neither the patient nor anyone else can tell why.

When called to a patient suffering from an asthmatic attack, we are often asked, “Is there any danger?” “Will he get over it?” and we can nearly always say positively that there is no danger to life, and

the paroxysm, however severe it may be, will undoubtedly pass off in time. We never heard of anyone really dying in a fit of asthma, unless there were heart disease, or some other complication. Directly faintness ensues, the spasm relaxes, and the danger is over. Then there is another question that is often asked, "Will he get rid of these attacks in time?" and that is a very much more difficult matter to solve. It depends on a good many different circumstances. In the first place, the age of the patient is not without its influence. In young asthmatics the tendency is almost invariably towards recovery, whereas in a person who is first attacked after the age of forty-five the tendency is just the other way. It is probable that there is no disease in which the question of age affects the prognosis more. To the young asthmatic under fifteen, whose lungs are sound, we can nearly always say, "You will grow out of it." To a person whose attacks have commenced between twenty and forty-five we cannot speak so hopefully, and can only say that by judicious treatment and management there is a very fair chance of recovery. Above the age of forty-five, it is only under very favourable circumstances that the complaint gets well by itself.

The length of the attacks has an important bearing on the prognosis. If they are short, lasting only a few minutes, or, at the most, an hour or two, we may hope for the best; but if they are very long, lasting a couple of days—or even a week, as they do sometimes—the case is a severe one. The frequency of the attacks is another point that may enlighten us as to the future. The more frequent they are, the worse the omen. Then again, the completeness of the recovery between the attacks is an important point. If the patient in the intervals is perfectly free from any shortness of breath, it is a favourable sign; but if he is always more or less short of breath, we cannot look so hopefully to the future. When, in addition to the asthmatic attacks, there is constant expectoration, the patient always spitting a little, it is a bad sign, for it shows a tendency to bronchitis. A cough has much the same meaning, and is also unfavourable. One often derives valuable information concerning the future from the course or direction the disease is apparently taking. Are the attacks becoming more severe and more frequent, or milder and more distant? The loss and the acquisition of the asthmatic tendency is generally a gradual process, and the future of a case is often but a reflection of its past history. If you feel that your attacks have mitigated in severity, and are getting less frequent, you have, especially if young, one of the most hopeful auguries of ultimate recovery. If, on the other hand, the disease is gaining on you, it

must be regarded as a bad sign. If you can detect the exciting cause of your attacks, it will materially affect the prognosis. If the exciting cause is clear, single, and such as may be prevented, nothing can be happier. You hold in your hands the key, as it were, of the disease, and by shutting off the exciting cause, you may indefinitely postpone a repetition of the attacks. If the attacks never occur but as the consequence of this exciting cause, and its recurrence is permanently prevented, this preventive treatment amounts to an absolute and final cure. If, for instance, as is not uncommon, there is some particular locality where the asthma is sure to come on, and no other, all you have to do is to stay away from that place; or if, as is still more common, there is only one place where asthma does not come on, all you have to do is to go and live there, and never leave it. If an attack comes on only after some indiscretion in eating or drinking, diet yourself strictly, and you are safe.

We now pass on to the consideration of the treatment of asthma, and about this we shall have a good deal to say. Asthma is a very uncertain complaint, and not uncommonly displays most astonishing vagaries. A remedy which succeeds admirably in one person may utterly fail in another, even when, so far as one can judge, the cases are identical. And more than that, a remedy may on one occasion cut short a paroxysm instantly, whilst in the same individual a few weeks later it may prove inoperative. Hence the large number of drugs that are employed in the treatment of asthma. We cannot lay down any positive rule for the treatment of your symptoms. We cannot say, "Take this, it will just suit your case." All we can say is, "Here are the different remedies for asthma; this one generally succeeds, try it first; if it fail go on to the next, and then the next, till you have tried them all, and found out which suits your case." A patient who has long suffered from asthma generally knows what will do him good better than any doctor can tell him. It is only after all his usual remedies and appliances have failed him, or in very severe attacks, that the asthmatic finds it necessary to send for medical aid. We will now proceed to the consideration of the remedies in detail.

Tobacco.—Most asthmatics are smokers, and by the use of the pipe or cigar often succeed in warding off their attacks. For a man who has never learnt to smoke, tobacco will prove very useful in arresting a paroxysm. The case is recorded of an asthmatic, who fortunately had never established a tolerance of tobacco, and who could at any time cut short the most violent paroxysm by twenty whiffs of a pipe, or half

a cigar. Sometimes he would begin to smoke when his breathing was so difficult that he could hardly smoke a pipe; he would draw a feeble whiff or two, and then stop to recover his breath, then another whiff, and so on. By-and-by he would lay down his pipe, with a look of intelligence at his attendant, as much as to say, "It's all right now"; his face would become pallid, and damp with perspiration, his limbs relaxed, his breathing long and sighing; but his asthma was gone. His object was to smoke just so much as to produce this condition, and no more, so that the moment he felt the sensation coming on he stopped. In the case of non-smokers, tobacco is a valuable remedy. Its advantages are that it is always at hand, and is very speedy in its action; but it has the great disadvantage that so many people habitually smoke, that they find a difficulty in getting themselves thoroughly under its influence. It is probably not a matter of any great importance in what form the tobacco is used, but on the whole we should recommend the pipe in preference to a cigar. A pipe has the advantage of being of more certain and uniform strength. Bird's-eye is very commonly used, as being a mild tobacco, and one but little likely to produce collapse. Shag and other strong tobaccos should be used by non-smokers with a certain amount of caution, as they are apt to cause very great prostration. In the case of ladies or children, a few whiffs at a mild cigarette will often succeed admirably.

Stramonium or *Thorn-apple*. often answers well when tobacco has proved useless, and it is regarded by many as one of the best remedies for asthma. The dried leaves are broken up, and either made into cigarettes or smoked in a pipe. Very often it calms the paroxysm like magic. One man, who had been a sufferer from asthma for many years, declared that since he had used stramonium his attacks had lost half their terror, for he knew he could always cut them short in a minute. People often say that stramonium is very uncertain in its action, but in the majority of cases it will be found to succeed if attention be paid to two or three little matters of detail. In the first place, you must have your leaves good; those you buy at the shops have often lost half their virtues. If you live in the country, you should grow your own stramonium, or, if a town-dweller, get some country friend to undertake this kind office for you. One patient stated that, while he received great benefit from stramonium grown and dried by a relative of his, that which he obtained at the shops did him no good whatever. Grow your own stramonium by all means, if you possibly can. It will grow almost anywhere, and without the slightest trouble. Then there is

another point—stramonium will cut short an incipient attack, whilst it has comparatively little power over one that has been thoroughly established. The great thing is to resort to it in time; and, as the patient is generally awake from his sleep by the paroxysm, he should put his pipe, already filled, with the means of lighting it, by his bedside over-night, so that when the time comes for using it not a moment may be lost. In many cases, it is a good plan to smoke a pipe of stramonium at bedtime, with the view of warding off an attack. Many people think that it does even more in the way of prevention than cure, and obtain greater benefit from the long-continued practice of smoking a pipe of it the last thing at night, whether an attack is threatening or not, than by waiting until a paroxysm comes on.

Some people derive considerable benefit from inhaling stramonium smoke. They do not simply take the smoke into the mouth and puff it out again in the ordinary way, but draw it well into the lungs. Many people who cannot inhale the hot smoke manage to take it when cold without the slightest difficulty. They smoke the stramonium like tobacco, puff the smoke into a tumbler, and then inhale it. The seeds of the stramonium are much more powerful than the leaves; and many people who have found the latter almost worthless have come to regard the former as a most efficient and powerful remedy. The effects of the seeds are so marked that a certain amount of care is necessary in using them, and they should be smoked in very small and gradually-increasing quantities. In some cases benefit might be obtained by steeping the leaves in a decoction of the seeds, and then drying and smoking them. Often enough when the ordinary stramonium (*Datura stramonium*) has failed, the stronger species (*Datura tatula*) will succeed admirably. There is one point in connection with stramonium-smoking that cannot be dismissed without a word of notice, and that is that in a very bad asthmatic attack the patient may be really so ill that he cannot smoke. He makes one or two ineffectual attempts at a whiff, but he is so short of breath that he cannot draw sufficient air into his mouth to keep it alight, and finally has to give it up as a bad job.

The *Cigares anti-asthmatiques de Joy*, a French preparation, often prove useful. They are said to contain arsenic of some form or other. They are sold now by most chemists. Cubebs cigarettes are often employed with advantage, and by promoting expectoration do much to break up the spasm. If the cigarettes are not obtainable, the powdered cubebs may be smoked in a pipe.

Coffee is a very excellent remedy for asthma. If you don't know

how to cut short your attacks, and have not tried coffee, do so by all means. It often succeeds admirably, when almost everything else has failed. There are one or two little points to be attended to in taking coffee for asthma. In the first place, it should be very strong—in fact, perfectly black. Weak coffee does more harm than good. If made very strong you need not take much of it; a large quantity is a positive disadvantage, for it is less rapidly absorbed, and only distends the stomach. Then it should be given without sugar or milk—pure *café noir*. It should be given on an empty stomach, for when taken on a full stomach it often does harm, by putting a stop to the process of digestion. There is no doubt that with some people coffee taken at meal-times—especially late in the day—is very apt to produce asthma. Finally, it should be given very hot. For travellers, and others who are not able to obtain coffee at short notice, the citrate of caffein tabloids (T. 33) will be found a useful substitute.

Nitre-papers.—Of nitre-papers we can speak in the very highest terms in the treatment of asthma. It is an old-fashioned remedy, but it is one of the best. A London physician has a son who almost from his infancy has been very subject to asthma, which, however, is readily controlled by the fumes of smouldering nitre-paper. They sleep in adjoining rooms. At that time in the early morning when the attack is wont to come on, the wakeful, anxious father listens for and hears in his son's altered manner of breathing the earliest intimation of the coming trouble; he rises immediately, and lights his nitre-paper in the son's chamber, and in five or ten minutes the threatened or incipient paroxysm is extinguished, the sleeper sleeping on in blissful ignorance of what has happened. This is by no means an isolated case. A lady obtained so much relief from this mode of treatment that she never went anywhere without taking some nitre-paper with her in her pocket. If an attack came on at any time she would at once resort to it. Sometimes, when making a morning call, she would find her asthma coming on; she would put up with the inconvenience as long as she could, and then when she could bear it no longer, she would ask to be allowed to retire to some room to use her remedy, and in ten minutes would return to her friends as well as ever. Many asthmatics habitually burn nitre-paper in their rooms before retiring to rest, and by this means invariably insure a good night's rest. Every one should make his own nitre-paper—the home-made is always the best. The best paper to use is ordinary blotting-paper: it must not be very thin, or it will not take up sufficient nitre; nor yet too thick, or it will make the fumes too carbonaceous;

but it must be moderately thick and very porous and loose in texture, so as to soak up plenty of the solution. There is no difficulty in making the solution, for all you have to do is to put in just as much nitre as the water will take up. Nitre-paper will keep for any length of time, and will be none the worse for it. If it get damp, all you have to do is to put it before the fire and dry it, and it will be ready for use in a few minutes.

When nitre-paper prepared in the ordinary way fails, another kind of nitre-paper will often succeed. This is very much stronger, and we have known cases in which its action was truly wonderful. We don't know that you can buy it anywhere, so that you will have to make it yourself. We have made it dozens of times, and it is really very little trouble. In the first place, you get half a dozen sheets of ordinary red blotting-paper, and you cut this with a paper-knife into pieces about six inches square. Then you take these pieces and make a number of little piles of six of them, one on the top of the other, all over the table. You next take a good-sized saucepan, half fill it with water, and put it on the fire to boil. You must now get some saltpetre and chlorate of potash, and throw them into the boiling water—an equal quantity of each, till it will not take up any more. There is no occasion to measure how much you put in. We usually throw in a big spoonful of each alternately, giving it a stir if it does not seem inclined to dissolve. When the water is saturated with the salts take the saucepan off the fire, put it on the hob, and then take one of your piles of blotting-paper—all six pieces—and dip it in. Directly it is wet through throw it on an old tray, or better still, on a piece of board with holes in it, so that it may drain. You must treat all your piles of paper in the same way. You will have to be rather quick in pulling them out of the hot salt solution, or you will scald your fingers. You may, perhaps, find it convenient to use a small pair of tongs. The best way of drying the paper is to put it out in the sun for an hour or two. In the absence of sun the kitchen fire forms a very effectual substitute, only you must take care that a spark does not fly out and set the whole of it on fire. Before the pieces of paper are quite dry, it is a good plan to sprinkle them lightly with a little aromatic of some kind or other. We generally use tincture of sunbul or spirits of camphor, but you can flavour to your taste. The addition of the aromatic, we are inclined to think, is not a mere matter of fancy, but really adds to the efficacy of the preparation. The nitre-paper so prepared is as thick as cardboard. It of course consists of the six pieces of blotting-paper,

closely adherent, and covered all over with crystals of saltpetre and chlorate of potash. For the sake of distinction we often speak of these thick pieces of nitre-paper as "nitre-tablets." The way you use them is this:—You take a nitre-tablet and fold it across the middle so as to make it like a tent, or the cover of a book. You then put it standing up in the fender, or on a piece of metal of some kind or other, and light it at each end of the fold. It burns very quickly, almost like a firework, forming a great deal of very dense smoke. In its combustion it often shoots out a flame, some six or eight inches long, from each end, so that you must be careful not to put it near the bed or the curtains, or anything that would catch fire. It is not a good plan to put it on a plate, for it may crack it. The smoke often causes great drowsiness, and the patient goes to sleep almost immediately, and nearly always passes the whole night without interruption. We have obtained some most excellent results with these tablets, and they often succeed when ordinary nitre-paper fails. Country asthmatics, who never suffer from their complaint whilst in town, may prepare a regular London atmosphere by this means.

Chloroform is a very good remedy for asthma, but it should be given with caution. It is never safe to use it for yourself, but if there is anyone to do it for you, well and good. As an illustration of the danger of the self-administration of chloroform, we may mention a sad accident that resulted from its use. A person who was in the habit of curing his attacks of asthma by inhaling chloroform, when administering it to himself one day, and when in a state of half-subjection to its influence, in order to produce the full effect placed his handkerchief on the table, and buried his mouth in it. His insensibility became deeper and deeper, till at last he was too far gone to raise his head. He continued inspiring it, his coma became more and more profound, and a short time after he was found in that position quite dead. It is never necessary to produce insensibility with chloroform for the relief of asthma—at all events, this should never be done except by a medical man. The best way is to crush one of the chloroform vaporoles (V. 5 in list, p. 152) and inhale at the first sign of an attack coming on. If employed in this way it proves extremely useful, but when the paroxysm is thoroughly established it is a far more difficult matter to stop it.

Chloral given in a ten-grain dose during a paroxysm will often succeed in arresting it.

Nitrite of amyl used as an inhalation often proves very useful in asthma, cutting short the attack almost immediately. One of the

vaporoles (V. 3) may be crushed in the hand and the fumes inhaled. The full effect of the drug has not been obtained until it causes flushing of the face and a sense of pulsation about the head. It can be used in the manner we have indicated with perfect safety. Other vaporoles which may be employed with advantage in the same way are the vaporoles of pure terebene (V. 10), pinol (V. 11), and eucalyptia (V. 12).

Ipecacuanha is a remedy very commonly used for asthma. The case is related of an asthmatic youth whose attacks generally awoke him about four or five in the morning, and soon compelled him to sit up in bed and wheeze, or get up and lean against the furniture for support. In two or three hours he would be able to dress himself, and perhaps in the forenoon he would obtain a little relief. Towards evening, however, he would get worse, and at bed-time there seemed to be no chance of the paroxysm passing off. He would then take twenty grains of ipecacuanha powder in a little water, would be sick, take a light supper, go to bed, sleep like a child, and wake quite well in the morning. There is very little doubt that if the ipecacuanha had been taken earlier it would have proved equally efficacious in cutting short the attacks, and would have saved some hours of acute suffering. Remedies such as ipecacuanha, which act as depressants, should be given as early as possible; it is essentially bad policy waiting till the paroxysm has got a firm hold before attacking it. Treatment is often powerless after the dyspnoea has continued for some hours which would not have failed if resorted to quite at the beginning. Moreover, even if the spasm does yield in spite of having been some time established, the recovery is not so complete as if the remedy had been applied immediately on its appearance.

Tartar emetic is sometimes used to cut short an attack. It acts in the same way as ipecacuanha, to which we are inclined to think it is inferior.

Lobelia inflata, the Indian tobacco, is one of our most valuable remedies for asthma. It does well in the form of asthma associated with indigestion, but proves especially efficacious when in addition to asthma there is bronchitis. It is less useful when the attacks come on periodically, at intervals varying from three weeks to a month. It may indeed for several days postpone or partly suppress the paroxysm, but after a time it usually breaks out, the lobelia being apparently unable to prevent the attack. The lobelia is taken internally in the form of the tincture. Ten drops of the simple tincture are to be taken in

water every ten minutes or a quarter of an hour, until the shortness of breath gives way. The only drawback to this medicine is that it is somewhat uncertain in its action, some people being made sick and faint by doses which others can take with impunity. Those who are in the habit of taking lobelia soon learn what dose suits them best. Even should sickness and faintness appear, they soon pass off, and never become serious. The relief obtained from lobelia is often very striking.

There is another remedy for asthma which we cannot pass by without notice, although we have some hesitation in recommending it, and that is *Alcohol*. It may be taken either in the form of whisky, brandy, or gin. It is essential that it should be taken very hot and very strong. The mixture should consist of two-thirds spirit and one-third water, and it should be so hot as that it is only just possible to drink it. The objection to this remedy is that it grows on one. You begin to take it, and often find it a difficult matter to leave it off. A gentleman who became acquainted with this method of cutting short his attacks was so pleased with it that he drank a quart of brandy in the first twenty-four hours. He went on with this treatment for two months, and in that time took twelve gallons of spirits. The great thing in favour of the alcohol is that it is always at hand, and often succeeds where the more orthodox remedies have failed.

Iodide of potassium is an excellent remedy for asthma. Asthmatics should take five grains of iodide of potassium or one of the tabloids (T. 47) three times a day, for a fortnight or longer. Should this fail to afford relief, the dose should be increased to ten grains three times a day. Some people never have an attack so long as they take the medicine; and then it is a good plan to continue it. Bromide of sodium—three of the tabloids (T. 19) dissolved in water—is almost equally useful.

There is a remedy for asthma which has been recently introduced—in fact, within the last few years—and we cannot refrain from just mentioning it. It is the *Grindelia robusta*. It is a Californian plant belonging to the natural order Compositæ—the daisy family. It is said somewhat to resemble the sunflower, only smaller. The best preparation is the *Grindelia Robusta Valoid Fluid Extract*, and of this thirty drops are given in a wine-glassful of water three or four times a day, an extra dose or two being taken at the onset of the paroxysm. In the case of a man who had had an asthmatic attack every night for years, it afforded complete relief in less than a week. It will not succeed in every case, but it is well worth trying. It never produces any unpleasant

symptoms. It is a remedy as yet not at all generally known, but it may be obtained through any of the leading London or provincial chemists.

The inhalation of the fumes of chloride of ammonium often proves useful.

Having considered in detail the different remedies used in the treatment of asthma, we will now pause for a moment, and just think over what you should do if suddenly seized with an attack. In the first place, can you account for it in any way? Do you know of anything that could have brought it on? Are your bowels confined? or have you been taking anything indigestible? If your bowels are at fault get them cleared out at once. Take a cathartic tabloid (T. 25), or use an injection. The latter is preferable, because it is so speedy in its action. A dose of Hashra tea at bed-time often proves useful. If the stomach is overloaded, you must relieve yourself by an emetic: a table-spoonful of ipecacuanha wine, aided by a draught or two of warm water, will answer your purpose. If neither your bowels nor your stomach is at fault, is there anything in the air that is answerable for it? Has anybody been burning sulphur matches, or anything of that kind? Do you smell anything wrong? Is there any hay-making going on? Can it be that? Has anybody been having anything to do with ipecacuanha powder? It is very important to find out the exciting cause; for if this continues in operation no amount of treatment will do any good. Do you think it is a question of locality? Do you always have an attack when you come here? If it is a question of locality, or if there is something acting as an exciting cause that cannot be removed—as, for example, a hay-field—the sooner you get away from it the better: order a cab, or your carriage, or whatever it may be; make them carry you downstairs if necessary, but get away without a moment's delay. It is very likely you will get all right before you have gone a couple of miles, always supposing that it is a local cause that has originated it.

It is a great thing to place yourself in as good a position as possible during an attack. If in bed get up, bolster yourself up in an arm-chair in front of a table of a convenient height, with a pillow on it, on which you may rest your elbows and throw yourself forward. It is really astonishing how much comfort this will often give; it not only actually relieves the breathing, but disposes the spasm to yield. If the breathing is really so bad that it is impossible for you to sit down, the only thing is to make the same arrangements adapted to a standing posture.

If, however, the spasm still persist, the best plan is to have recourse

to one of the remedies we have mentioned, or to try several of them in succession. In the choice of a remedy you will be more or less influenced by your former experience. You probably know better than anybody what will suit your attack and what will not. Few asthmatics suffer long from their complaint without discovering what particular remedy is most efficacious in their case, and in this respect asthma displays such caprice that there is no better guide than the patient's own experience. Patients who are liable to be seized with an attack of asthma whilst away from home should carry a Pinol-Eucalyptia Dry Inhaler or a Menthol Pocket Inhaler. The vaporoles of chloroform (V. 5), ether (V. 2), and nitrite of amyl (V. 3) will be found very convenient for use in emergencies.

We must now say a word or two respecting the dietetic treatment of asthma. Most asthmatics are more or less dyspeptic, and, as has been very truly said, in no direction is asthma more accessible than through the stomach. Even when, as in many cases, the asthmatic does not suffer from the severer forms of dyspepsia, it will be found that the stomach is irritable and the digestion capricious and irregular. The presence of food in the stomach at bed-time is a potent exciter of the paroxysm of asthma. It is a good practical rule, that anyone subject to asthma should not take solid food for five or six hours before retiring to rest. If a man goes to bed at twelve, he should take nothing to eat after six o'clock. He should at all times carefully abstain from taking anything commonly reputed to be indigestible. All preserved things are to be avoided. Potted meats, dried tongue, sausages, stuffing and seasoning, preserved ginger, candied orange-peel, dried figs, almonds and raisins, everything of this kind is to be regarded with suspicion. Cheese is bad, especially if old: and it has been said that there is "as much asthma in a mouthful of decayed Stilton as in a whole dinner." Nuts are especially likely to excite asthma. Meat-pies are very "asthmatic," so, in a peculiar degree, for some reason or other, are beef-steak and kidney puddings. As we have already seen, coffee taken as a beverage with meals is particularly likely to bring on asthma. The after-dinner cup of coffee is seldom admissible. For breakfast it will usually be found that tea is better than coffee, cocoa better than tea, and milk-and-water better than either. It is a good plan to peptonise the milk with zymine powders, or to add a tea-spoonful of Kepler Extract to the milk-and-water. Heavy malt liquors, especially those containing much carbonic acid gas, as bottled stout and Scotch ale, are, of all drinks, the worst for asthma.

Over-distension of the stomach is very apt to bring on asthma. An asthmatic's meals should always be small in quantity, as nutritious as possible, and of easy digestion. The tendency of eating to induce asthma is in direct proportion to the lateness of the hour at which the meal is taken: it is slight after luncheon, worse after a late dinner, worst of all after supper; whilst breakfast is entirely free from it. As breakfast is the least likely of all meals to do harm, the sufferer from asthma need not hesitate to take advantage of the fact, and should make a good one. In fact, in the case of people whose time is practically their own, there is no reason why the first meal of the day should not be to all intents and purposes dinner, the usual order of the meals being reversed. Flatulence may be prevented by taking three drops of oil of Cajuput on a piece of bread immediately after each meal, whilst for an attack of acidity there is nothing better than one or two of the soda-mint tabloids (T. 72). The process of digestion is often hastened by taking two or three tabloids (T. 60) in a little water immediately after each meal.

Curiously enough, many asthmatics never suffer from their complaint in certain localities. In some cases the foul and murky atmosphere of a crowded city proves more beneficent than the clear and purer air of the country. People tormented at home, and coming to London for medical advice, often find themselves on their arrival suddenly and thoroughly freed from their accustomed malady: and are sometimes vexed that, however long they may wait, they get no opportunity of letting their chosen physician witness an attack. On their return to the country their complaint quickly resumes its habitual tyranny. In these cases, the densest, lowest, and most foggy parts of the city usually furnish the surest defence against the assaults of the disease. The history is related of a great sufferer from asthma, who was accidentally detained one night in the foul region of Seven Dials. He felt persuaded that he could not possibly survive till morning, so great was his dread of the close atmosphere. He not only lived through the night, however, but enjoyed the first uninterrupted sleep he had known for months. He took the hint, removed to Seven Dials for the benefit of the air, and from that time never suffered another attack. We would advise residents in the country, whose life is rendered miserable by constant attacks of asthma, to see what London air will do for them. It is probable that there is nothing peculiar in London except so far as this, that it is a thickly-covered, densely-populated, smoky city. We imagine that in the same class of cases any other large manufacturing city, such as

Manchester, Liverpool, or Glasgow, would do equally well. As a rule, the worse the air is for the general health the better it is for asthma. To this there are some exceptions, and some asthmatics are always safer in pure inland air, and a few find a specific remedy for their complaint in the air of the sea-coast. It is probable that every case of asthma is curable by the air of some place or places, and nothing but actual trial will discover what that is.

ASTHMA FROM ANIMAL EMANATIONS.—*Cat Asthma, etc.*—Cat asthma is an uncommon but very curious complaint, related in its general features to hay fever. The cause of the asthma is, as the name indicates, the proximity of a common domestic cat. One would hardly believe that such a thing could be possible, were not its reality placed beyond doubt. It is a fact; and there is neither invention, nor imagination, nor exaggeration about it. We recently had a case under our care, and can vouch for the reality of the suffering. The symptoms very closely resemble those of the hay fever, but they are usually shorter in duration, and, perhaps, more severe whilst they last. The asthmatic spasm, which is immediate and violent, is accompanied by sneezing, and burning and a watery condition of the eyes and nose. The eyes are injected, and instinctively avoid the light. Sometimes there is excessive itching of the chin, which may also extend to the chest, and perhaps to between the shoulders. Some shortness of breath is usually produced in susceptible people, even when they are sitting by the fire and the cat is lying quietly on the hearth-rug; but the effect is much greater when the animal is at the distance of only a foot or two, and it is still further increased by stroking the cat, especially when it is in the lap just under the face. The exciting influence is said to be greater in kittens than in full-grown cats. After the removal of the animal the symptoms begin to subside almost immediately, and if the paroxysm is not very severe, a cure is effected in from ten minutes to a quarter of an hour.

Many people, even when they do not actually suffer from cat asthma, are strangely and unpleasantly affected by the presence of cats. With them, the effect on the eye of rubbing it just after touching a cat is to produce a hot stinging irritation, a profuse flow of tears, and an intolerance of light. The result of touching the lip is to produce a swelling, with a feeling of heat and irritation. If the cat happen to rub against the face, the cheek immediately becomes hot and swollen, and a kind of nettle-rash makes its appearance.

In some people asthmatic symptoms are produced not only by cats, but by other animals. The case is related of a lady who could never visit the Zoological Gardens without being rendered asthmatic. In another instance a gentleman found that he could never go near horses without suffering from shortness of breath, nor did he dare stay in the room with anyone who had been riding. He was a country gentleman, and it was frequently desirable that he should attend agricultural meetings, but he was unable to do so from this circumstance. We are told of a clergyman who was always rendered asthmatic by a hare or a hare-skin. If he met any of his parishioners who had been poaching and had their booty about them, he could always detect them. When he was a boy studying with a private tutor, a friend, as a practical joke, put a hare under a sofa in the room in which he was sitting, and the result was an immediate and very serious attack of asthma. A lady who was subject not only to cat asthma, but to hare asthma, tells us that on one occasion she was seized with a terrible attack whilst on a railway journey. She was unable to account for it in any way, until a gentleman getting out of the carriage took a hare from beneath the seat. This same lady was unable to wear a cloak made of certain skins, from the shortness of breath it produced.

Respecting the treatment of these cases, we have nothing to add to what we have already said when speaking of asthma. When once the exciting cause is known it is easily avoided.

BILIOUSNESS—CONGESTION OF THE LIVER—LIVER DERANGEMENT—LIVER OUT OF ORDER.—Nothing is more common than to hear people say that they are bilious, and that their liver is out of order. No one supposes that it is a serious complaint, but it is uncommonly disagreeable while it lasts. There can be no doubt that the liver is often credited with symptoms with which it has little or no concern, and on the other hand symptoms are often referred to other organs which undoubtedly have their origin in the liver.

We will, in the first place, consider what are the causes of derangement of the liver, and how it is that it so often goes wrong. We fear that errors in diet have a great deal to do with it. There can be no doubt that the present system of living, and especially the consumption of even what are regarded as average quantities of rich food and stimulating drinks, have much to answer for. It will be generally admitted, and it would not be difficult to prove, that most people eat

more than is good for them—more than suffices to maintain the nutrition of the body. Of course, we do not mean that you individually take too much; but still, if you look round at your neighbours you will at once perceive that the amount of food they take is positively disgusting. Much of this excess is passed off by the bowels, but a great deal of it is taken up by the blood, and accumulates in the system, upsetting the liver. With regard to different kinds of food, we know that the liver is most apt to be deranged by sweet or fatty substances. Derangement of the liver is in many people more likely to be induced by even small quantities of these substances than by a moderate excess of meat. Rich sauces and sweets are very apt to disagree. There are also certain peculiarities with regard to many articles of diet, which always derange the liver in certain individuals, though they are comparatively harmless to others.

But, above all, alcoholic drinks are the most likely to cause liver derangement. They act injuriously in two ways. In the first place, even small quantities of alcohol in healthy people produce a temporary congestion of the liver; and if the alcohol be taken in excess, or too frequently, the congestion becomes permanent, and the functions of the organ are deranged. But wines, and in fact most alcoholic drinks, contain large quantities of sugar; and this, as we have seen, proves especially injurious to those who are prone to liver disturbance. It has been found that the injurious effect of alcoholic beverages upon the liver increases in a direct ratio to the amount of sugar and spirit they contain. It would seem, indeed, that a mixture of spirit and sugar produces injurious results which would not be caused by taking a much larger quantity of spirit or sugar alone. Practically, we know that the alcoholic drinks which are most apt to disagree with the liver are malt liquors of all sorts, but especially stout and the stronger forms of mild ale, port wine, madeira, tokay, malaga, sweet champagne, dark sherries, liqueurs, and brandy; whilst those least likely to derange the functions of that organ are claret, hock, moselle, dry sherry, and gin or whisky, largely diluted.

Derangements of the liver from excessive eating, or from any other error in diet, usually first show themselves in middle life—from thirty-five to forty-five. Young people who take much exercise, and who are still growing, can eat more than they actually require with comparative impunity. But by the age of forty the body is fully developed, and most persons take less exercise than before, while at the same time they often indulge more freely in the pleasures of the table.

Insufficient muscular exercise in the open air may derange the functions of the liver. It is well known that sedentary habits, and living in badly-ventilated rooms, act on the body injuriously, and more especially on the liver. It is a common observation that people who eat and drink too freely do not suffer from their livers so long as they lead an active life in the open air; but as soon as from change of occupation or other causes they take to sedentary habits, without any corresponding change in diet, derangement of the liver ensues. Every sportsman who has suffered from biliousness knows the effect of a day's hunting or shooting in clearing his complexion and relieving his symptoms.

A high atmospheric temperature is especially favourable to the production of disorders of the liver. We all know how frequently they occur in India and other tropical climates, and in Britain the liver more often becomes disordered in summer than in winter. The drought, which is suitable in a cold or temperate climate, produces in the tropics liver derangement.

It is probable that many cases of liver disturbance are nervous in their origin. We know that sudden fear, and other forms of severe mental emotion, may arrest the secretion of the milk, and that, from the cessation of the secretion of saliva, the tongue cleaves to the roof of the mouth. Prolonged mental anxiety, worry, and incessant mental toil, interfere with the secretion of bile, and produce that chain of symptoms to which we shall presently refer. Such results are all the more likely to ensue if the diet has been such as to favour liver disturbance—if, for example, to drown grief the sufferer has indulged in stimulants.

In considering the causes of derangement of the liver, it must not be forgotten that there are constitutional peculiarities—inherited or acquired—in virtue of which the liver is upset by things which, under ordinary circumstances, would be harmless. Some people are more prone to suffer from their livers than are others. An innate weakness of the liver is often inherited. If an individual with this predisposition take spirits even in comparatively moderate quantities, he usually suffers very quickly and also severely. Some people are always drinking, and apparently suffer but little from it, whilst others have only to take a glass or two of champagne to be most frightfully upset.

We must now consider the symptoms which we recognise as indicating that the liver is out of order. In the first place, the tongue is usually covered with a thick fur, sometimes whitish, but occasionally of

a yellowish or brownish tint. It is commonly large, pale, and flabby, and indented by the teeth. Nevertheless, it is well to remember that there may be considerable derangement of the functions of the liver, and yet the tongue may be perfectly clean, or at most only slightly coated in the morning.

When the flow of bile is deficient, the appetite is often very bad, and there may be a loathing of fat and of greasy articles of diet. Sometimes there is a loathing of everything except alcohol, indulgence in which intensifies the mischief. In exceptional cases the appetite may be excellent, even when the liver is performing its work very badly, and the patient is often tempted to eat what he knows from experience disagrees with him. Liver disturbance is often accompanied by a bitter or metallic taste in the mouth, especially in the morning. "Hot coppers" is a frequent complaint of those who have indulged too freely over-night.

Flatulence, or wind, is another common symptom. It is one of the most frequent results of a deficient flow of bile. From the absence of bile in the intestines, the food undergoes fermentation, and a large quantity of gas is generated. Acidity is another frequent source of trouble. Many articles of diet habitually disagree with people who suffer from their livers, so that they get bilious. They awake in the morning with a dry or clammy tongue, a bitter taste in the mouth, dull heavy headache, giddiness, and cramps or pains in the knuckles.

Functional derangement of the liver generally gives rise to disturbance of the bowels in some form or other. Most commonly there is constipation. The bile acts as a kind of natural purgative, and when it is secreted in diminished quantity there is nothing to stimulate the bowels to action. The motions are either unusually pale, or from long detention in the bowel become black and lumpy. The latter condition is often associated with great depression of spirits—the origin of the term melancholy. Very often, instead of constipation, there is diarrhœa, or the two conditions may alternate. It is probable that the retention of undigested food in the bowel, by setting up irritation, is the cause of the diarrhœa. It may be taken as a rule, that when little bile is secreted the stools are pale and unusually offensive, unless they be long retained in the bowel, when they may be dark and lumpy; and that when there is an excessive secretion of bile—an overflow of bile—the motions are relaxed and liquid.

In exceptional cases, bleeding from the bowel occurs as the result of simple derangement of the liver, without the existence of any actual

permanent disease of that organ. It is not common, but is most frequently met with in people beyond the middle age. The attack is usually preceded by a feeling of oppression and heaviness, by pain in the right shoulder, loss of appetite, nausea, and furred tongue. It is often followed by a subsidence or cessation of the symptoms. Great relief is usually afforded by a good purge, such as a calomel or blue pill, and a saline aperient.

Many people who suffer from liver complaint are subject to piles. In fact, some doctors have gone so far as to say that, if a person complains of piles, it should make you suspect that his liver is out of order. The two conditions are undoubtedly very frequently associated.

Often enough there is considerable derangement of the liver—it performing its functions very imperfectly—without any pain over the region of that organ. In many cases, however, there is a sensation of weight, fulness, tightness, or even burning, just below the ribs on the left side. When the bowels are neglected, or if the patient continue to indulge in rich food and alcoholic stimulants, the pain may become very severe. It is usually increased after meals, and by lying on the left side.

Aching pains in the limbs, and lassitude coming on about an hour after a full meal, sometimes associated with an irresistible tendency to drowsiness, are symptoms often resulting from the liver being out of order. Sometimes complaint is made of a dull heavy aching in the right or, more rarely, the left shoulder, or under the shoulder-blade. Burning or scalding of the palms of the hands and soles of the feet—a complaint very common with those who indulge largely in alcohol—is often an accompaniment of liver disorder. This curious sensation may be persistent, but far more frequently it is transient, coming and going by fits and starts. Cramps in the calves of the legs, the abdomen, and other parts are not uncommon, and are often very distressing. They usually come on during the night, occurring most commonly in cold or damp weather. They seem, in some instances, to be associated with a tendency to gout.

People whose livers act badly often suffer from headache. It usually takes the form of a dull heavy pain, either in the forehead or more frequently at the back of the head. It is experienced chiefly on awaking in the morning, and may either speedily pass off or last the whole day, or even for several days. This form of headache may in susceptible persons be produced by constipation, or by any little indiscretion in diet. Megrim, or sick head, is not always caused by liver derangement, but it is sometimes.

Giddiness, dimness of sight, double vision, and many other similar curious symptoms, are undoubtedly dependent in many instances on congestion of the liver and a deficient flow of bile. An attack may often be excited by certain articles, such as fat and sugar, which, as we have seen, are especially likely to disagree with bilious people. A good purge to rouse up the liver often succeeds in effecting a cure more quickly than anything. The case is recorded of a gentleman who was seized with dimness of sight and giddiness every night while writing. He took iron, quinine, and other tonics, but got worse instead of better. He was told that he must give up his profession for a time, and try the effect of change of scene and air; but before taking so serious a step, he took a few doses of blue-pill, and the symptoms at once and permanently disappeared.

People are often met with who complain of numbness, tingling and pricking sensations, as if the part were asleep, or a feeling of coldness or creeping in the arms or legs of one or both sides. These disagreeable sensations often last for months or years, and may be associated with headache, nausea, and depression of spirits. They often cause needless alarm by exciting the suspicion that paralysis is imminent. They are frequently associated with, or dependent on, liver disturbance, and disappear under the use of calomel pill, salines, and a restricted diet.

Sleeplessness sometimes arises from derangement of the liver, and may then be speedily relieved by treatment directed to that organ.

The influence of the liver upon the animal spirits has long been recognised. There can be no doubt that in many cases depression of spirits, inaptitude for work, and general listlessness, are aggravated by torpidity of the liver. Many people with structural or functional disease of the liver are subject to fits of depression, and often suffer from groundless fears of impending danger, which cease when the liver is restored to its normal condition. Irritability of temper often arises from the liver. A man who has previously borne the crosses of life with equanimity, and has been amiable to those about him, gradually becomes disconcerted by trifles, his mind broods upon them, and he makes all around him unhappy, and himself the most miserable of all. His friends and relatives, failing to recognise the true nature of the case, too often put down his ebullitions of temper to something mentally or morally wrong, and he comes to be regarded as a most disagreeable fellow. Remedial measures calculated to restore the liver to healthy action, if resorted to in time, will often remove the irritability, and reinstate the patient in the good graces of his friends.

We must now proceed to the consideration of the treatment of these cases of liver disorder of which we have been speaking. In the first place, it must be borne in mind that regulating the diet will do you more good than any amount of physic. If you are not prepared to put yourself to a little inconvenience in the matter, and give up some of your accustomed luxuries for the sake of getting well, it is no good going to the doctor—you had better try the undertaker. You should never forget that that which may ultimately destroy life too often enters by the same portal as that which is intended to support it. For the maintenance of health it is necessary for most people to put a curb upon their appetites. It is all very well to go after rank, and reputation, and wealth; but they are very little good to you if your bile-duct gets blocked up. What is the good of a baronetcy, for example, if you have to stay at home and live on blue-pills? If your liver shows any signs of performing its work badly, you had better take it in time, and cut off supplies. You will have to give up *entrées*, and shun all highly-seasoned dishes as you would the plague. Some people may get on very well with them, but they are poison to you. You had better label them mentally with a skull and crossbones. It is a shame for people to tempt you with them, but they will; and you will have to make a determined stand against them. It is a difficult matter sometimes: people are so persevering—especially women—and they never display their perseverance more persistently than in persuading you to eat or drink what you know is not good for you. This faculty is commonly called “hospitality.” If you are really very bad, you will have to give up, not only your *entrées*, and sugar, and alcohol, but even potatoes, rice, sago, and fruit. It may be that your trouble is simply due to some one simple article of diet. You had better look out for that, and if so, cut it off at once. With many people, a diet consisting chiefly of stale bread, plainly-cooked mutton, white fish, poultry, game, eggs, a moderate amount of vegetables, weak tea, cocoa, or coffee, answers better than anything. It is not very pleasant at first if you have been accustomed to gratify your appetite: but it is nothing when you get used to it. In time you will learn to laugh at people who eat anything that is put before them, without regard to their internal economy. You simply pick what experience has shown you is best for you; and who can blame you? If you did otherwise, people would only laugh at you behind your back, and think you stupid. If your liver is weaker than other people's, perhaps your headpiece is stronger, so they have not much to boast about after all. At all events, it is a

great thing to be able to talk rationally after dinner, and not to be reduced to a condition of semi-torpidity. Sometimes it is necessary to cut down the actual quantity of food taken; but this is not usually the case. In obstinate cases it sometimes proves beneficial to take the principal meal of the day the first thing in the morning, when the digestive powers are strongest.

As a rule, the very strictest caution has to be observed with regard to drinkables. Malt liquors, port, champagne, madeira, burgundy, have all to be given up, and must be reserved strictly for the use of your friends. Claret, or a small quantity of spirits largely diluted, will probably suit you better than anything; but sometimes, alas! even these may have to be given up. A man need never despair as long as his doctor leaves him gin and seltzer, only it must be a large quantity of seltzer to very little gin. The gin is useful in this way, that it carries off a great deal by the kidneys, and serves to rid the blood of much effete matter, which might otherwise prove injurious. Most people get on well without any stimulant at all; and it is the opinion of many who speak from personal experience that those who have much brain-work to do would be better if they did altogether without alcohol, or, at all events, took it in the very strictest moderation. Even for persons who for years have been indulging largely, there is very little risk in abandoning stimulants. Unless there is a weak heart, the only inconvenience experienced is a sinking at the pit of the stomach and a craving for alcohol, which a repetition of the stimulant has only temporarily relieved, and has rendered more persistent.

Plenty of fresh air is very essential in every case in which there is anything wrong with the liver. An excess of fresh air will indeed often counteract the bad effects of too large a quantity of food. Outdoor exercise quickens the flow of blood through the liver, and prevents the accumulation in the system of materials which would probably prove injurious. Sea air is especially efficacious in this respect, and many sufferers from liver derive immense benefit from residence at the sea-side and from sea-bathing, although, unfortunately, the good effects of sea air are often more than counterbalanced by unhealthy lodgings and badly-cooked food.

The free use of soda, seltzer, lithia, and Rosbach water is useful in helping to eliminate morbid materials from the system. Many people derive considerable benefit from drinking a tumbler of cold water while dressing in the morning, and another before going to bed at night. The action of the skin should be maintained by frequently bathing the entire body with tepid water.

In most cases of functional derangement of the liver, great advantage is derived from the frequent use of aperient medicines, whether there be a tendency to constipation or not. Aperients bring away not only bile, but waste material from the blood. Saline aperients, from the promptness of their action and the large watery motions they induce, are among the best for the purpose. Recourse is usually had to Epsom salts (sulphate of magnesia), Glauber's salts (sulphate of soda), Rochelle salts (tartrate of potash and soda), or the phosphate of soda, or to various combinations of these salts with common salt (chloride of sodium), carbonate of soda, and other alkaline salts, such as are found in the waters of Carlsbad, Freidrichshall, Püllna, Harrogate, or Cheltenham, or in the recently-discovered springs, Hunyadi János and Franz Josef. The salts derived from most of these springs can be obtained from any chemist, and they are best taken with warm water, and in the morning fasting. For people who prefer taking their dose in the evening, and who have a difficulty in swallowing pills, nothing proves more efficacious than Hashra tea. The action is easily regulated, and is unattended with straining or griping. Injections are useful in opening the bowels, but their operation is purely local, and they exert no influence on the liver.

One of the most valuable remedies in cases in which the liver is out of order is *Blue-pill*. Of late years an attempt has been made by physiologists to show that mercury has no action at all on the liver in increasing the flow of bile. We do not know how that may be; but we do know that if you are bilious you cannot do better than take a dose or two of blue-pill. Everybody who suffers from biliousness knows what a great deal of good blue-pill will do him. He knows that there is nothing else like it. If anybody does not believe in medicine let him get right-down bilious, and then take a blue-pill. We believe that even the most sceptical would admit that there was something in it. Even supposing we agree to believe the physiologist, and admit that mercury is incapable of increasing the flow of bile in health, it by no means follows that it is inoperative when the liver is out of order. It is quite conceivable that mercury may remove certain unhealthy conditions of the liver which prevented the secretion of the bile. Surely it is far better to endeavour to restore the liver to its natural condition than to give an unhealthy liver a drug to make it work. Putting theory on one side, we all of us know practically that blue-pill removes what we call biliousness, and nobody in the world can deny that. The pill (T. 16), taken at bed-time, may be followed by a saline aperient (Pr. 25), or

black draught, in the morning. In many instances one of the sugar and grey powders (Pr. 71) given frequently will do almost as well as a large dose of blue-pill. These powders are especially indicated when there is a dull oppressive pain over the liver, preventing the patient from lying long on the right side; when the whites of the eyes are tinged with yellow; when the skin is sallow, when there is shivering followed by profuse clammy perspiration; when there is loss of appetite, a nasty taste in the mouth, and constipation, with pale-coloured motions.

Podophyllin is a very good substitute for mercury when the latter cannot be used. It is, on the whole, less certain in its action than mercury, and more likely to cause griping. A dose that will purge one person violently often proves inoperative in another. Individual differences occur, it is true, with other purgatives, but *podophyllin* is unusually uncertain in its action. The time it takes to act also varies very much. It purges some people in an hour or two, whilst others have to wait about all day. Sometimes, instead of doing its work straight off and having done with it, it makes a number of ineffectual attempts, and is a long time before it succeeds. The following is a good formula for its administration, the henbane being supposed to reduce its tendency to cause griping:—

PODOPHYLLIN PILLS.

Resin of *Podophyllin*, half a grain.

Powdered rhubarb, three grains.

Extract of hyoseyamus, three grains.

Make two pills. To be taken every night at bed-time.

In many cases very much smaller doses of *podophyllin* may be employed. The *podophyllin* solution (Pr. 51) may be used with advantage. It is a small dose, but it is of no use taking more than is really sufficient to do you good. *Podophyllin* succeeds best when nausea and giddiness, bitter taste in the mouth, risings, tendency to bilious vomiting, and purging, and dark urine, are the prominent symptoms. When there is dull pain over the liver, when the bowels are costive and the motions pale, when there is loss of appetite and depression of spirits, it does not do so well. Mercury, in either large or small doses, should then be tried.

Colocynth, *Aloes*, *Rhubarb*, *Jalap*, and *Senna* are all useful aperients in deranged liver resulting in constipation and deficient excretion of bile. Pr. 60 is a good purgative pill, and the cathartic (T. 25) and laxative (T. 51) tabloids may be taken with confidence.

Dandelion has been in use for years as a popular remedy for liver. It is probable that most of the so-called dandelion pills that are so constantly advertised contain either mercury or podophyllin. Dandelion itself has little if any action on the liver, either in health or disease, and at the best it can but act as a mild aperient. *Colchicum* may be given with advantage to gouty persons suffering from liver, but in other cases it is not the best mode of treatment.

Chloride of ammonium (sal ammoniac) has been found of service in congestion of the liver, both in this country and in India. It should be given in water, in doses of twenty grains (T. 32), two or three times a day. It is not by any means nice, the solution in water tasting uncommonly like brine, but it does good. If a difficulty is experienced in taking it, it may be administered in milk. It often induces perspiration, increases the flow of urine, diminishes the congestion of the liver, and removes the pain in that organ.

In many of the severer forms of congestion of the liver, especially such as occur in tropical climates, *ipecacuanha* may be given. It should be administered in the manner which will be recommended when speaking of its use in dysentery. This is not a mode of treatment which is required in ordinary liver derangement in this country.

Nux vomica often proves useful in the simple case of liver derangement resulting from the use of intoxicating drinks, excessive or stimulating food, sedentary habit or nervous exhaustion. It is also indicated when there is constipation with deep red urine. It is best given in the form of the *nux vomica* mixture (Pr. 44) or tabloid (T. 57).

Bryony is indicated when there is enlargement and hardness of the liver, with shooting, stinging or burning pain, increased on pressure, and constipation without inclination to go to stool. It should be given according to Pr. 49. It often acts admirably when given alternately with mercury.

Chamomile is useful in bilious attacks occurring in women and children from exposure to cold. It is indicated when there is nausea or vomiting of bile, yellow-coated tongue, and bilious diarrhoea.

Aconite (T. 1) is useful in sudden acute bilious attacks following chills, with high temperature and slight jaundice. It may be given alternately with mercury.

Quite recently *Iridin* and *Euonymin* have been introduced as remedies for different forms of liver complaint. *Iridin* is the active principle of *Iris versicolor*, or blue flag, whilst *Euonymin* is obtained from *Euonymus atropurpureus*, spindle-tree or mahoo. Both powerfully

stimulate the liver, and from their milder action on the bowels are in many cases preferable to podophyllin. The dose of iridin for an adult is four grains; of euonymin two grains. They may be made into pills either with sugar of milk or with a grain or two of extract of hyoscyamus. With many people these doses taken at bed-time produce a sufficient purgative effect; but in other cases the purgation is insufficient or is delayed, and griping is then apt to ensue. The best way is to follow the pill by a dose of some saline aperient in the morning—the Franz Josef, Pullna, or Carlsbad water, for example—so that the bile secreted during the night may be fully and quickly evacuated. Neither remedy produces sickness or headache. Euonymin will usually remove a slight feeling of biliousness, but when the tongue is decidedly yellow, iridin is preferable. Another remedy is *Hydrastin*, the active principle of *Hydrastis canadensis*. It not only stimulates the liver, but acts as a general tonic. The dose is from one to two grains at bed-time.

Alkalies are very useful in the treatment of functional diseases of the liver. The greatest benefit is often derived from a course of alkalies, such as carbonate of potash, or soda, or lithia. Sometimes it is better to give the alkaline mineral waters, such as those of Vals, Vichy, or Ems. It is well to suspend their use occasionally, as they are apt, when long continued, to upset the stomach, but in cases in which they are indicated they are usually well borne. When there is much sleeplessness, a dose of bromide of potassium—fifteen or twenty grains—may be added to the water taken at bed-time. Should the waters in any case appear to be too weak, twenty grains of chloride of ammonia (T. 34) may be added to each dose for a few days.

Mineral acids are often employed in derangements of the liver, Nitric acid especially has been thought to have the power of augmenting the flow of bile, but this is very doubtful. The acids may be of use when there is debility and want of tone, but the chief good which they effect is probably by improving digestion. Sometimes both acids and alkalies may be given, not mixed, but the alkalies before meals and the acids after.

Tonics, as a rule, do no good in liver complaints, for they are apt to disagree. People often improve at once on substituting abstinence from alcohol with aperients, blue-pill, carbonate of soda, and careful regulation of the diet, for quinine, iron, the mineral acids, and stimulants. Opium is usually to be avoided when the liver is out of order—it increases the torpidity both of liver and bowels.

When a patient has had a very bad attack of liver, and the more

urgent symptoms have passed off, he will still have to be very careful of himself. The acid and gentian mixture (Pr. 15), with or without the addition of five drops of tincture of nux vomica (T. 57) to each dose, taken three times a day, often proves very useful at this stage. The diet may be rather more generous, particularly if the patient is much pulled down, although the greatest care must be taken to avoid everything likely to produce a relapse. Fermented liquors are still interdicted; and if wine be allowed at all it should be given in small quantities, and well diluted. Hock, claret, and dry sherry are the best. You want your wines light, but you want them good. Regular exercise in the open air is enjoined, and if there is much debility, horse exercise is the thing. The bowels will require careful attention, and benefit will often be derived from waters which are not only purgative, but contain iron, such, for example, as the springs of Harrogate, Cheltenham, Leamington, Homburg, and Kissingen.

When on the high road to recovery, the sufferer from liver disorder will often derive benefit from the use of the nitro-muriatic acid bath. This is prepared by adding two ounces of strong hydrochloric and one ounce of strong nitric acid to two gallons of water, at a temperature of 96 or 98 degrees. Both feet are to be placed in the bath, while the legs and thighs, the region over the liver, and both arms, are sponged alternately, or the abdomen may be swathed in flannel soaked in the water. The process is to be continued for half an hour night and morning. It is absolutely necessary that a wooden tub should be used, as the acid very soon destroys any ordinary metal bath. The sponges and towels should be placed in cold water after use, or they too will soon be destroyed. It is not absolutely necessary to prepare a fresh bath on every occasion, and the same may be kept in use for several days. All you have to do is to add one drachm of hydrochloric and half a drachm of nitric acid with a pint of water, to make up for waste, and then to heat about a quarter of the fluid in an earthen pipkin, and so bring the whole up to the required temperature.

In many liver complaints the abdominal compress will be found useful. It consists of two or three thicknesses of linen wrung out of cold water, placed over the seat of pain, and covered with a rather larger piece of oiled silk. The whole is kept in position by a flannel or linen roller passing round the body. It may be worn several nights in succession, the parts being well sponged with cold water and rubbed with a coarse towel on removing it in the morning.

In the treatment of functional diseases of the liver, rest and change

are most valuable, both as means of cure and prevention. The worry of business and the burden of domestic cares should be removed for a time, and the monotonous scenes of every-day life exchanged for the hill-top and wild moorland. Should this be impossible, the long hours of mental and physical labour should be abridged, and more time given for the daily renewal of nervous energy. Man is a working animal, but it is very easy to do too much.

BLADDER, DISEASES OF.—(*See* DISEASES OF KIDNEY AND BLÁDDER.)

BLEEDING FROM THE BOWELS.—Blood in the motions is often due to piles. Ignorance of this fact sometimes gives rise to needless alarm. In every case in which the stools are found to be mixed with blood, the patient should be examined for piles, for often enough the blood does really come from the bowels. Hæmorrhage from the intestines is not of infrequent occurrence in typhoid fever and dysentery. When blood appears in the stools it has generally undergone much alteration in character, the amount of change depending on the quantity and source, and also, to some extent, on the rapidity with which it is poured out. When a little blood comes from the upper part of the bowels, and is slowly discharged, it is dark in colour, being sometimes quite black, and presenting a tarry or sooty aspect, so that its real nature may not at first sight be suspected. When the blood comes from the lower part of the bowels, near the extremity, it is often quite bright-red, and has undergone very little change. The quantity may vary from a mere streak to half a pint or more. It must be remembered that many medicines, such as iron and lead, stain the motions black, and this, of course, must not be mistaken for altered blood. Many people get very anxious if they find that their motions are black, but it occurs naturally when taking certain metallic substances.

The treatment of bleeding from the bowels does not differ essentially from that of bleeding from other parts of the body. In the first place the patient should be made to lie down in a cool room, and should be kept as quiet as possible. Cold wet compresses should be applied to the abdomen, and if there is any one particular spot where pain or tenderness is experienced, or from which there is reason to suppose the hæmorrhage proceeds, a bag or bladder of ice should be applied on that region. Some astringent medicine must be given internally, and one of

the best for this purpose is the acetate of lead mixture (Pr. 30), a dose every four hours. Should this not be at hand, perchloride of iron (Pr. 1 or 2), gallic acid (Pr. 29), or tannic acid (T. 76), may be used. Another good remedy is hazeline, a tea-spoonful in water every hour. Thirty drops of turpentine taken in milk will often succeed better than anything; it should be repeated every three hours until the bleeding ceases. A very simple and efficacious plan is to inject ice-cold water into the bowel. In these cases, too, the tincture of hamamelis virginica often succeeds admirably. A drop should be given in a tea-spoonful of water every quarter of an hour for the first hour, and then two drops every second or third hour. It is most likely to do good when the blood is dark in colour.

The energy with which the treatment should be pursued, and the question as to whether a doctor should be called in or not, must obviously depend on the amount of bleeding.

BLEEDING FROM THE STOMACH—HÆMATEMESIS.—Hæmatemesis, or hæmorrhage from the stomach, must be regarded simply as a symptom of disease, and not as a disease itself. It occurs in the course of many morbid conditions of the stomach and other organs. As a primary or idiopathic condition it is practically unknown; we never meet with bleeding from the stomach analogous to the bleeding from the nose which is of such frequent occurrence in children and young people.

But hæmorrhage from the stomach, occurring in connection with other constitutional hæmorrhages, or in their stead, is by no means uncommon. Not infrequently hæmatemesis is vicarious of menstruation, replacing the periods month after month with the greatest regularity. The case is recorded of a young woman who became the subject of hæmatemesis recurring at the monthly periods about the age of fourteen. She had never menstruated in the usual way. This occurred until she married, and in due time became pregnant, whereupon the hæmatemesis ceased. She brought forth her infant, but during the period of suckling the hæmorrhage did not recur. It came on again soon after she ceased to nurse the child. No regular menstruation from the womb ever happened. This form of hæmorrhage is not, as a rule, dangerous, and has little tendency to shorten the life of those who are afflicted with it. Sometimes, however, it does prove dangerous, the exhaustion from the mere loss of blood causing considerable alarm for the patient's safety.

Two instances are recorded of suppressed menstruation being followed by copious hæmorrhages from the stomach, which ultimately proved fatal. In neither of these cases was the health seriously deranged, nor previously to the onset of bleeding was there any debility or constitutional disturbance which could have afforded the slightest suspicion as to the unfortunate termination of the illness.

In the majority of cases hæmatemesis is dependent on some injury to, or disease of, the stomach. The affections of the stomach in which it is most likely to arise are ulcer and cancer. It is sometimes a consequence of swallowing irritant poisons. Hæmorrhages from the stomach may be the result of congestion of the stomach, arising from disease of the heart, or liver, or spleen. People who have injured their livers by excessive drinking often bring up blood from the stomach. Hæmatemesis may also occur in the course of yellow fever, sea-scurvy, and some other diseases.

Vomiting of blood is more common in women than in men. It is usually preceded by a sensation of weight and uneasiness at the pit of the stomach, and by nausea. It may also be ushered in by paleness of the face, dimness of vision, and a feeling of faintness. The hæmorrhage commonly produces great depression, owing partly to the alarm which, naturally enough, is always engendered by "spitting blood," and partly from the quantity of blood actually lost. In bleeding from the lungs, as we shall see presently, the blood is brought up by coughing, in mouthfuls at a time, is of a florid red colour, is frothy, and is frequently mixed with sputa. Moreover, bleeding from the lungs is usually preceded by cough, shortness of breath, with palpitation, tickling in the throat, and a peculiar sensation in the chest. We shall have more to say on the mode of distinguishing bleeding from the stomach from bleeding from the lungs, when speaking of the latter complaint. A difficulty in making the diagnosis may arise either when the blood is vomited immediately after its effusion into the stomach, so as to escape the action of the gastric juice, or when that proceeding from the lungs has been swallowed and subsequently vomited in an altered condition. Hæmorrhage from the stomach is seldom, if ever, the first symptom of disease of that organ. The patient has usually for some time been complaining of dyspeptic symptoms, and has suffered from pain in the stomach, nausea, or vomiting.

When a large quantity of blood is poured out into the stomach, it appears to have a nauseating and emetic effect, and is soon rejected by

vomiting. The dark colour which it presents is due to the action of the gastric juice, and the degree of blackness will be in proportion to the relative quantity of the acid which it meets in the stomach, and the intimacy of the admixture. Sometimes the blood is clotted and not much altered in colour, and sometimes it is brown, of a chocolate tint, or like coffee-grounds. Sometimes, when the quantity of blood poured out into the stomach is small, it may pass into the intestines and be voided with the motions. In this way it may escape recognition either from the stools not being examined or from the changes in appearance it has undergone in its passage through the alimentary canal.

Even when it can be shown that the blood has been vomited it is not a proof that there is disease of the stomach. The blood may have proceeded from the mouth or nose, and have been involuntarily and unconsciously swallowed. This is very likely to happen during sleep, especially to young children, and as the blood when subsequently vomited is coagulated and mixed with food, it is scarcely possible to say from its mere appearance that it has not arisen from bleeding from the stomach. We may in these doubtful and difficult cases succeed in arriving at a correct conclusion by a careful inquiry into all the circumstances of the case and an examination of the mouth and nose. Hæmatemesis is a complaint which is not infrequently feigned, either for the sake of avoiding some punishment, or with a view of exciting compassion. A young girl who was anxious to avoid the constraints of a convent, pretended that she was suffering from severe hæmatemesis. In fact, on several occasions, she vomited large quantities of blood in the presence of the physicians who had been summoned to her assistance. It was not till long after that it transpired that she had swallowed the blood, which had been conveyed to her secretly from the neighbouring shambles.

Severe hæmorrhages from the stomach are occasionally directly fatal; and this is more likely to occur when the bleeding results from cirrhosis of the liver—the form of liver disease caused by drink—than when it originates in ulcer or cancer of the stomach. In the last-named disorders hæmorrhage is often dangerous from the exhaustion and anæmia it produces. At the same time a very large number of patients with hæmatemesis recover from the most hopelessly anæmic states; and we should never despair of saving the patient until life is actually extinct.

Next as to the treatment of hæmatemesis. What should you do in

the case of a person vomiting blood? In the first place, keep your head steady. No noise, no hurry, no talking. Stand back, please, and give him plenty of air. Make him lie down, undo his clothes, open the windows, and, you, sir, go and get some ice, as sharp as you like. When the ice comes, break it up, give him little pieces to swallow—ice pills—and rub a great lump all over his stomach outside. If you have an astringent or astringent mixture in the house, give him a dose; you can be doing this whilst they are gone for the ice. If you have either the acetate of lead mixture (Pr. 30), the perchloride of iron mixture (Pr. 1), or the gallic acid mixture (Pr. 29), give three table-spoonfuls at once; or, if you have any tincture of steel, give a tea-spoonful of this in a glass of water; or, if you have liquid extract of ergot, give a tea-spoonful of this in water; or, if you have oil of turpentine, give a tea-spoonful of this in water or milk; or, if you have gallic acid or tannic acid (T. 76), give one of these in water. The dose of either gallic or tannic acid is fifteen grains, but if there is much bleeding do not stop to weigh it, throw a little into a tumbler of water, stir it up, and make him toss it off. If you have nothing but alum this must do; dissolve some in water, and make him take that, and give him some pieces to suck as well. Should faintness occur, it need excite no alarm, as it favours the coagulation of the blood, and may tend to arrest the bleeding. Should the faintness persist, iced champagne is an excellent restorative, and is not likely to excite vomiting.

After the first sharp bout is over, and all immediate danger is passed, abstinence from solid food should be enjoined with perfect rest in the horizontal position. The room should be kept cool, and iced acidulated drinks should be taken at intervals. It may be necessary to continue the use of one of the astringent mixtures. Probably the best is the acetate of lead (Pr. 30), two table-spoonfuls being taken either every three or four hours, according to the condition of the patient. After a severe attack it may be necessary to abstain from giving any solid food by the mouth for some days, the strength being supported by nutritive injections. If anything is given by the mouth it had better be milk or beef-tea; but these must be cold, and nothing hot is to be taken. When there is much prostration it may be necessary to resort to the use of beef-tea enemata, containing a little brandy and twenty drops of laudanum. The laudanum allays the excitement, but should not be given oftener than three times a day, and its use should be discontinued as soon as possible. We have recommended the addition of brandy where there is much exhaustion, but stimulants should not

be given unless there is some absolute necessity for them, as they are very apt to excite the bleeding. In some cases it may be necessary to give cream, raw eggs, essence of beef, various broths, and perhaps even Kepler essence or cod-liver oil. When the bleeding is known to be dependent on liver disease, a good purge, say a compound jalap powder, or a three-grain calomel pill (Pr. 61, T. 21), at bed-time, and a black draught in the morning, will do good by getting rid of the congestion, but this treatment would be hurtful in either ulcer or cancer of the stomach. When the complaint becomes chronic, and there is only a little spitting of blood occasionally, the gentian and acid mixture (Pr. 15) will often answer well, and the quinine mixture (Pr. 9, or T. 63) will also prove valuable in many instances. The bowels should be kept open by a dose of Hashra tea at bed time, or by an occasional laxative tabloid (T. 51).

We have by no means exhausted all our remedies for hæmatemesis. We have already had occasion to refer to the employment of *hamamelis virginica* in different kinds of bleeding, and it succeeds capitally in hæmorrhage from the stomach. The best form in which to give it is as hazeline, the dose of which is a tea-spoonful in water every quarter of an hour until the bleeding ceases. By many people it is considered to be the best remedy in these cases, and undoubtedly it often acts admirably. When the hæmorrhage is accompanied or preceded by flushed face, shiverings, and quick pulse, aconite should be given according to Pr. 38. When the blood is bright red, and the face is pale, ipecacuanha should be tried (Pr. 50). It is often used after or in alternation with aconite. Ipecacuanha is especially indicated in hæmatemesis vicarious of menstruation. In these cases when the catamenia desert their natural channel and seek an outlet through the stomach, it will be well, while means are taken to discourage the hæmatemesis, to endeavour to solicit the discharge in the right direction. And we often succeed in this object by placing leeches upon the groins of these patients immediately before the period when the vicarious menstruation is expected, and by putting their feet at the same time into hot water, or even by laying the patient in a warm bath.

In all cases of bleeding from the stomach the attendance of a medical man is necessary.

BLOOD-SPITTING.—If a person spit up more than a few drops of blood, we should advise him to see his doctor and have his chest

examined. Quite a large quantity of blood may be spat up, and nothing come of it; but still it is well to be cautious, and in such a case as this it is really absolutely necessary that the matter should be thoroughly investigated. The most common cause of blood-spitting is consumption; but there are other causes, and it does not absolutely follow because a man spits blood that he is consumptive. Sometimes the blood comes up without any warning; but people who are subject to hæmoptysis—as spitting of blood is technically called—often know by experience what is about to happen. It is generally coughed up a mouthful at a time, but sometimes we have seen it come up in gushes—nay, almost in torrents. The quantity may vary from a mere streak to a pint or more. The blood is generally bright red and frothy; but occasionally, especially when it is discharged suddenly, it is dark in colour. There may be clots, but usually it is entirely liquid. The attack varies much in duration: it may be all over in a minute or two, or the expectoration may be tinged with blood for days together.

In a person disposed to bleeding from the lungs, the onset of an attack may be determined by a variety of causes. Anything which hurries the circulation will have a tendency to excite the hæmorrhage—straining of any kind, great bodily efforts, active exercise, much talking, and more especially public speaking or singing, or playing on wind instruments.

When a man brings up blood we must try to find out where it comes from—does it come from the lungs or from the stomach? Sometimes this problem is easy enough to solve; at others it is most difficult. If a man is known to be consumptive, we suppose that the blood comes from his lungs; and if a young woman has long suffered from symptoms of ulcer of the stomach, we naturally enough conclude that the hæmorrhage is gastric in origin. Even when we know nothing about the previous history of the patient, the circumstances of the attack may serve to throw some light on the subject. In bleeding from the lungs the blood is generally coughed up in mouthfuls; but in bleeding from the stomach it is vomited profusely. When the blood comes from the lungs it is frothy, and of a florid red colour; when from the stomach it is not frothy, and is dark in colour. When the blood comes from the lungs, it is mingled with phlegm; when from the stomach, it is mixed with food. After bleeding from the stomach the motions are often black or contain blood; but in bleeding from the lungs this symptom is absent. For convenience of reference and comparison we have arranged these symptoms in parallel columns:—

In Bleeding from the Lungs—

The patient has previously suffered from cough, shortness of breath, or other chest symptoms.

The blood is coughed up in mouthfuls.

The blood is frothy, and of a florid red colour.

The blood is mingled with phlegm.

The bleeding is not followed by blood in the motions.

In Bleeding from the Stomach—

The patient has previously suffered from loss of appetite, vomiting, or other stomach symptoms.

The blood is vomited up profusely.

The blood is not frothy, and is dark-coloured.

The blood is mixed with food.

The bleeding is often followed by black motions, or they may contain blood.

These are the rules, but there are many exceptions. On paper it looks a very easy matter to distinguish between these two different kinds of bleeding; but practically there is often a difficulty. For instance, a man who is spitting blood from his lungs may accidentally swallow some of it, and then that may give rise to nausea and vomiting; or, on the other hand, a man who is vomiting blood may in his hurry and excitement draw some into his chest, and then it would set up coughing, and might be expelled again mixed with phlegm. These rules will help you in making the diagnosis, but your own common sense will do more for you than anything.

Sometimes bleeding from the nose is mistaken for spitting of blood. When a person is lying down, blood from the nose readily passes backwards into the throat, and when spat up might excite unnecessary alarm. Bleeding from the gums has, in some cases, been mistaken for something more serious; but an examination of the mouth will at once show the real nature of the case.

What is to be done when anyone is spitting blood? In the first place send for the doctor; and if it is coming up quickly, remember that there is no time to be lost. If you have any tannic acid tabloids (T. 76) in the house, put half a dozen into a little water, and make your patient drink it off at once; or if you have the perchloride of iron mixture (Pr. 1), or the acetate of lead mixture (Pr. 30), give two tablespoonfuls of either, the latter by preference. If you have nothing else, give some pounded alum and water, or even salt and water. Half a teaspoonful of common salt put on the tongue dry, and gradually swallowed, is by no means a bad remedy. Send for some ice, and give the patient some to suck, directing him to swallow the small pieces. If the bleeding is not arrested, put some ice on his chest or back next to the skin; you may wrap it up in a towel or handkerchief if necessary. If you can get no ice, and the bleeding is very bad, you may throw some cold water over the chest and back, or use a towel wrung out of cold water.

A very good remedy, and one that is easily obtained, is turpentine. Put some on a handkerchief, or into the palm of your hand, and hold it under the patient's nose, directing him to inhale the vapour. This will often succeed when everything else has failed, and it is a method of treatment which is available even when the patient cannot swallow. Pure terebene—not the disinfectant known as terebene—is equally efficacious for the purposes of inhalation. The pure terebene vaporoles (V. 10), if used in sufficient quantity, will answer the purpose admirably.

The energetic treatment we have advised is necessary only in bad cases—where the blood is really coming up in gushes, and life is endangered. When the blood is spat up only a little at a time, we may proceed more leisurely in the administration of our remedies. The patient should be put to bed in a cool well-ventilated room. He should have plenty of ice broken into small pieces to suck and swallow, and he should take the acetate of lead or gallic acid mixture every four hours. Everything should be taken quite cold. His fears should be calmed, and he should be kept as quiet as possible both mentally and bodily. If the cough is very troublesome, a tea-spoonful of the morphia linctus (Pr. 56), or a dose of the ordinary cough medicine, should be taken when necessary. It is very important to keep the cough quiet, or it may start fresh bleeding. If the bowels are confined, a purgative (T. 51) should be given at once, and one or two loose motions will do good. No stimulants of any kind should be given—this is very important. A glass of hot brandy-and-water given to a man spitting blood might kill him, so that you must be very particular on this point. If he complain of thirst, you may give him as much iced water or iced milk as you like, but nothing in the shape of stimulants.

There are several other remedies for spitting of blood which may have to be employed in obstinate cases.

The liquid extract of ergot, given in half tea-spoonful doses in water every three or four hours, often succeeds admirably. In very severe cases it may even be given hourly for the first three or four hours. The addition of ten drops of laudanum to each dose increases its efficacy, but the laudanum should not be given oftener than every four hours. In apparently hopeless cases the injection under the skin of a concentrated extract of ergot—known as ergotin—has often saved life: but this is a mode of treatment which can be resorted to only by a medical man.

We have already spoken of the inhalation of turpentine as a valuable means of arresting bleeding from the lungs. Not uncommonly it is also given internally. Thirty drops of oil of turpentine are dropped into a

wine-glassful of water, and taken every three hours. Not infrequently the turpentine, ergot, and laudanum are given together.

Ipecacuanha has obtained a high reputation in the treatment of the less severe forms of hæmoptysis. Three drops of ipecacuanha wine may be taken in a tea-spoonful of water every ten minutes for the first hour, and subsequently five drops may be taken hourly, or the ipecacuanha mixture (Pr. 50) may be used.

Hazeline often proves useful in spitting of blood. It is recommended chiefly in cases where the blood is dark in colour, and the flow is not very rapid. The dose is one or two tea-spoonfuls in water every two or three hours.

Aconite often succeeds admirably in checking spitting of blood. The great indication for its use is elevation of temperature. It may be given in the form of the aconite mixture (Pr. 38), or tabloid (T. 1), as directed.

Tincture of arnica is the remedy to employ when the bleeding has resulted from mechanical violence, as a blow on the chest. It is to be taken internally—a drop in a tea-spoonful of water every ten minutes for the first hour, and subsequently hourly. A more reliable preparation is the Valoid Fluid Extract of Arnica, the dose of which is five drops in a little water every hour. In some patients arnica excites erysipelas, and then hazeline should be substituted. In many cases, dry cupping over the back or chest arrests the bleeding more quickly than anything. Good results are said to follow the application of the hot-water bag to the upper part of the spine.

BOILS.—We feel that it would be superfluous to attempt to define a boil. Most people have a pretty clear idea of what they are like. A man who has once had a boil is not likely to forget it. It is a kind of thing that impresses itself on the memory. It makes, if not a favourable, at all events a lasting, impression.

Boils are not particular where they come. As a rule, they prefer the posterior region, and then a chair becomes a useless article of furniture. They are not averse to making their appearance on the back of the neck, just where the edge of the collar catches you. Sometimes they come on the back, just under the braces, and a favourite spot for them is on the forehead, where it is rubbed by the rim of the hat. Although often out of sight, they are seldom out of mind. Sometimes they come singly, but, on the whole, they prefer to come in crops, or in a series of crops, one after another. Some people are very susceptible to them, and

generally have one or two about them somewhere. In these peculiarly gifted individuals they come out on the very slightest provocation. You put a poultice on to cure one, and half a dozen others, flattered by the attention, make their appearance. Occasionally a blister is followed by a crop of boils, and an ordinary plaster has been known to bring them out.

A boil is of no practical value. It is said that everything has its use, but this certainly does not apply to boils. They are of no use; and few people consider them ornamental. They do not improve your personal appearance, and they do not add to your comfort. We are told, on good authority, that in many cases they must be looked upon as salutary, as being the means adopted by Nature to rid the system of morbid matters that irritate the constitution. This may be, but a boil is a violent remedy. Most people, if they had the choice, would prefer a less energetic means of having the system cleared out. Scientific doctors usually call them *furunculi*, but even then they are rather painful.

It is very difficult to say what boils are due to. They are generally ascribed to a "disordered condition of the blood," or to "atmospheric causes," or to "depressing influences." As a rule, they come in spring; but they appear to have no particular objection to summer, autumn, or winter. They are far more prevalent some years than others: 1887 and 1888 were good boil years. They usually make their appearance at especially inconvenient times, and they commonly pay a pretty long visit. As a rule, they prefer stout, full-bodied people; but in default of better material, they will attack the anæmic and debilitated. They take an interest in athletic sports, and those who are in training often make their acquaintance. They are often to be found in company with the now almost extinct animal—the prize-fighter. They seem to be favourably disposed to good living, for they often put in an appearance when people take to living on a more liberal scale. When a young woman "goes to service" for the first time, she often develops boils. She has probably been living in the country all her life, and has had plenty of out-door exercise and not too much to eat. When she comes up to London she seldom gets out till after dark, and eats meat three times a day, and the result is—boils. The subjects of saccharine diabetes often suffer frightfully from boils, and in them they are by no means easy to cure. It is stated that boils and carbuncles often come from eating the flesh of animals who have died of the disease called pleuro-pneumonia.

As a rule, boils display a particular affection for young people. They are fond of children. They often come out during convalescence from

fevers and other exhausting diseases. They sometimes result from over-suckling.

There are two forms of boils. They are so closely related, that if one had one's choice it would be difficult to know which to prefer. The ordinary boil is lumpy, definite in extent, and prominent on the surface, whilst the flat or blind boil is less definite in its outline. The common boil usually begins as a little lump beneath the skin. At first it is not very painful, but subsequently it makes up for any deficiency on this score. As it increases in size it seems to irritate the surrounding tissue, which presents an angry appearance. After a time the external swelling becomes more pointedly conical, and acquires a bright-red blush on the surface. The pain is usually of a piercing, throbbing character, sometimes varied, by way of a change, by a distressing sensation of tension and weight at the part affected, the surface of which becomes exquisitely sensitive to the slightest irritation. In from four to eight days the boil bursts and lets out a little matter, disclosing a little opening leading straight down to the greenish-yellow core beneath. A day or two later this core comes away, leaving a large hole. The trouble is now nearly over. The subsequent progress towards recovery is rapid. For a day or two longer a little thin matter is discharged, and then the hole gradually fills up, leaving behind nothing but a small, depressed, and slightly discoloured spot.

The flat or blind boil generally commences in a small inflamed pimple, surrounded by a red and exquisitely tender ring, ill-defined in its margin. The pain is from the first of a throbbing character, keeping time with the beating of the heart, and is greatly increased by anything that quickens the circulation. The boil, when it bursts, discharges a little matter, but the core is usually far smaller than in a common boil.

Boils, as a rule, give no notice of their coming; yet not infrequently individuals who have had much personal experience of boils can anticipate the appearance of each fresh visitor by the occurrence of a certain feeling of general discomfort and chilliness, while in others the eruption is preceded by a transient irritability and querulousness of temper.

What is the best remedy for boils? Sulphide of calcium, undoubtedly. A tenth of a grain should be taken hourly, or every two or three hours, or Pr. 78 (or T. 74) may be employed. It lessens the inflammation, and reduces the area of the boil. Moreover, it liquefies the core, so that it separates more speedily, and the troublesome little visitor is induced to take its departure. When the skin is not yet broken, and

the slowly separating core not exposed, this medicine often converts the boil into a little abscess, which soon bursts, and the whole thing is over. If the sulphide is taken sufficiently early, the boil often dries up, the inflammation subsides, and a hard knot is left which disappears in a few days without the formation of a core, and without any discharge. The sulphide exerts a marked influence on the general health, removing the debility and *malaise* so frequently associated with these eruptions. Not only will the sulphide of calcium, taken in the manner we have indicated, cure existing boils, but it will often prevent the formation of fresh ones.

There are certain local measures which may be advantageously adopted, in addition to taking the sulphide of calcium. When you send to the chemist for your tabloids, tell him to forward you a bottle of liniment composed of equal parts of belladonna liniment and glycerine. At the same time order a piece of belladonna plaster, three inches square: the best is that spread on leather. Now cut a hole in the middle of your plaster about the size of the boil, and apply it so that the boil protrudes through the aperture. You will find no difficulty in making your plaster stick if you warm it for a little time before the fire. Next, daub the boil gently but thoroughly with the liniment. Lastly, put a small linseed-meal poultice over the whole, taking care that it does not extend beyond the plaster. Change the poultice as often as it gets cold, and each time apply fresh liniment freely to the boil. The belladonna liniment helps to reduce the inflammation and allay the pain. We have already mentioned that a poultice applied to the skin in the neighbourhood of boils often brings out a fresh crop. The object of the plaster is to protect the healthy skin from the direct contact of the poultice. This is the best treatment of boils with which we are acquainted. We have had considerable experience of it, and we are enabled to speak of it most favourably. Of course, when a tendency to boils is known to depend on any particular cause, that cause should as far as possible be removed. We must mention that sulphide of calcium occasionally fails, and in the deep-seated boils resulting from diabetes it usually does no good.

The sulphurous waters of Harrogate are often resorted to for the cure of boils. They contain sulphuretted hydrogen—the gas into which the sulphide of calcium is converted when taken into the system. The milder springs, such as the Mild Montpelier Well, usually prove most efficacious.

Belladonna, which is so serviceable when applied locally, often does

good when taken internally. Of course the belladonna liniment is not intended for internal administration. The tincture of belladonna is for this purpose the right preparation. The dose is two drops every two hours in a little water. This is equivalent to two tea-spoonfuls of the belladonna mixture (Pr. 39) or two tabloids (T. 9). It does most good when administered in the early stages, before matter has formed. When there is matter the sulphide of calcium is much to be preferred.

A very good local treatment for boils consists in the application of flexible collodion, which should be painted over the part with a brush. This is applicable only to boils which have not yet burst. It is desirable to apply fresh coatings of collodion over the old ones, allowing them to remain until the boil has dried up and the sore place completely disappeared. This treatment has also the advantage of allaying the great irritation which often accompanies the early stage of boils.

We are told on good authority that, in a certain limited number of cases, yeast taken fasting in table-spoonful doses three times a day does good. It is added that its use need not be continued longer than a fortnight or three weeks. We have had no experience of this method of treatment, but if we could not cure the boil with sulphide of calcium in a very much shorter time than that, we should be ashamed of ourselves. In some very obstinate cases it might be worth trying.

It is said that in the earlier stages boils may be cut short by rubbing in first tincture of camphor, and then olive oil, three times a day.

A good remedy for preventing the recurrence of boils is sulphur. One or two grains should be taken three or four times a day. Ten-drop doses of dilute sulphuric acid taken in water twice a day before meals will prove equally serviceable.

Sufferers from boils require "feeding up." "A low diet" is seldom called for. Attention to diet, cleanliness, and healthy out-door exercise and recreation, will do much towards eradicating a predisposition to boils; but when they do come, sulphide of calcium is *the* remedy.

BRAIN—DISEASES OF THE BRAIN.—The brain, like every organ in the body, is liable to many diseases, and sometimes, it must be confessed, it is not easy to detect their nature. We do not know as yet quite as much about the healthy brain as perhaps we ought to: we know that it is a complicated organ, but physiologists are not agreed about the function of each part. Encased as it is in a bony covering, it is not very easy to get at. We can ascertain the condition of most of

the internal organs by different modes of examination with almost as much certainty as if we could see them. If we want to find out if there is anything the matter with the heart or lungs, we sound the chest and listen to it, and the problem is at once solved. Or if we want to know anything about the stomach, we look at the tongue; or if about the kidneys we examine the urine. In brain diseases we can employ none of these methods of examination; and, moreover, the intellect is often interfered with, so that we are cut off from the information we might derive from the statements of the sufferer. We have the ophthalmoscope, it is true, by which the eyes can be examined and some information obtained about the condition of the brain, but it wants special skill and experience to use that instrument, and its teachings are often far from reliable.

There is one thing—disease of the brain is not likely to be overlooked or mistaken for anything else. A man has an apoplectic seizure, for instance, or becomes maniacal, and you can make no mistake about that. No, you are far more likely to suppose that you have to deal with some very serious disease of the brain, when in reality it is nothing but dyspepsia, or the liver is a little bit out of order. People who live in large towns often get very much worried and bothered about their work, their business, or whatever it may be. They get anxious and despondent, and very often think they have some disease of the brain, or that they are going mad. This is simply the result of overwork, and nine times out of ten it means nothing serious. The best remedy for it is bromide of potassium, fifteen grains, dissolved in a little water, three times a day, or it may be given in the form of the bromide of potassium mixture (Pr. 31) or tabloids (T. 18); this, combined with rest and change of air and scene, will usually make these so-called brain symptoms disappear like magic. After a time phosphorus, the elixoid in tea-spoonful doses in water three times a day, or the hypophosphites (Pr. 55), will do good. Phosphorus in a soluble form is a brain food, and is an excellent remedy in all disorders of that organ.

Many people whose blood is poor suffer from a deficient supply of that fluid to the brain; this gives rise to many disagreeable symptoms, but more especially to headache. The pain is usually felt in the temples and at the top of the head. It is not very severe, but is just as if something were pressing down and out from the inside. It is increased by abstinence from food and by the erect posture, and is often removed by lying down. It is intensified, too, by thinking, reading, writing, etc. It usually comes on in the morning, during dressing, goes

off after breakfast, comes on again before luncheon, and so on. The pain is often throbbing in character, and is accompanied by a feeling of fulness and weight, so that people often think there is determination of blood to the head. In addition to the headache there may be noises in the ears and a general sense of pulsation all over. The noise is heard on both sides, and is rumbling and low-pitched like distant cart-wheels. All these symptoms soon pass off when a little attention is paid to the general health. The great thing is to take plenty of good nourishing food, and to remove the anæmia, or poorness of blood, by iron (T. 15, 38, 65) and the other remedies recommended when speaking of that complaint. Kepler extract with iodide of iron will be found most useful in this distressing condition.

The reverse condition—congestion of the brain—is not of infrequent occurrence. It may be met with in the course of different fevers, when it is often the cause of delirium, or it may occur quite independently of any other disease. Old people whose tissues and blood-vessels are decaying not infrequently suffer from this condition. They find it comes on when they are weak or cold, or when they have been over-exerting themselves, as in straining at stool or going up-stairs. Congestion of the brain is undoubtedly in many cases due to a tight cravat or shirt-collar, and people who have a tendency to apoplexy should look to this. It is a good rule to have the collar so big that you can get both hands in between it and the neck. A patient who suffers from congestion of the brain gets dull at times, and confused with regard to the use of words. He cannot remember the names of people or things, nor can he remember events that happened long ago. He exhibits a tendency to fall asleep after meals, and gets habitually stupid. All his sensations are more or less obtuse, his hearing is not good, and even when he does hear a thing you have to repeat it three or four times before you can get him to understand it. He often complains of numbness and giddiness, and sometimes says he sees things floating about before his eyes, or hears rumbling noises in his ears. These symptoms are always worse after lying down, and are increased by a meal, and more especially by overloading the stomach. Often enough there is a sense of general weakness and weight in the limbs, which seem dead and heavy. There is never any actual loss of power in the limbs, but every movement is attended with a sense of weariness or disgust. Sometimes the forehead is hotter than the cheeks, and the lips and ears and the loose tissue under the eyes are dusky red. The tongue is usually furred; there is indigestion; the bowels are sluggish, and often

there is a tendency to shortness of the breath. One always fears in these cases that if the case be not taken in time a fit may ensue.

The great thing in the way of treatment is to pay attention to the general health, and see that the secretions are free. The bowels should be kept perfectly regular (T. 3 or 51); and should there be a deficiency of urine, the amount should be increased by taking Rosbach water. The mind should be kept as quiet as possible; and it is a good thing to sleep with the head well raised. Should the rest be disturbed, three tabloids of bromide of sodium (T. 19) should be taken in water every night at bed-time. Such medicines as iron (T. 15), quinine (T. 63), quassia and gentian should be taken occasionally, with the view of maintaining the general condition of the health. Mixtures Prs. 1, 2, 3, 6, 9, 11, and 15 will be found useful for this purpose. Phosphorus—the elixoid—and the hypophosphites (Prs. 53, 54, and 55) are especially indicated.

Softening of the brain most frequently occurs in those whose health has been for some time below the average, or in people who are the subjects of some chronic and exhausting disease. It occurs most commonly in those over the age of fifty. Usually there is more or less severe and persistent pain in the head, with attacks of giddiness coming on suddenly and soon passing off. There is a diminution of intellectual power, an embarrassment in answering questions, depression of spirits, and an inclination to shed tears on the slightest provocation. There are commonly prickings and twitchings of the limbs, and sometimes pain or numbness. There is often a tendency to stupor, especially after meals; and, more or less, impairment of vision or hearing is not uncommon.

Softening of the brain is a complaint in which the attendance of a doctor is absolutely necessary. In any case in which a tendency to softening is suspected, attention to the following points will prove of value :—

1. The body should be maintained at an even temperature; the feet and hands when chilly and blue should be put in hot water, or wrapped in and rubbed with warm flannels; and the head should lie low.

2. Long intervals between the meals should be avoided; food easy of digestion should be given frequently; and the patient, if old, should not be allowed to pass the night without nourishment.

3. When there is a tendency to faintness, some gentle stimulus, such as a glass of wine or a little sal volatile, should be given.

4. The mind should be easily and pleasantly occupied—lazy inaction being avoided on the one hand, and violent excitement on the other.

5. The bowels should be carefully attended to (T. 3); constipation and straining at stool should be avoided, and so should the production by medicines of anything like active purgation.

In cases where there is paralysis, convulsions, insensibility, delirium, or any of the more serious symptoms of brain disorder, it will of course be necessary to obtain medical aid. In many brain diseases, iodide of potassium given in large doses, gradually increasing from five grains up to ten, twenty, or even thirty, three times a day, will do good even when everything else has failed; but this is a point on which you must be guided by your doctor. The iodide of potassium tabloids (T. 47) contain five grains; but when it is desired to give a larger dose, two or more may be given. It is chiefly in cases in which there is reason to suspect a syphilitic taint that iodide of potassium proves so eminently serviceable.

BRIGHT'S DISEASE.—This disease, which was named after the eminent physician who in 1837 first described it, is regarded by some as a disease of the kidneys, and by others as a general constitutional disease in which the kidney is affected. What should be its exact place in the classification of diseases is a matter which in reality concerns us but little. We can consider its symptoms and discuss its treatment equally well, whether we regard it as a purely local disease, like stone in the bladder, or as a disease of the whole system, like gout or rheumatism.

It is a recognised fact that there are several different, though closely allied, diseases included under the general name of Bright's. They have, however, one symptom in common, and that is that the urine contains albumin. Albumin is the substance which we know familiarly as "white of egg," and normally, in a state of health, it is not found in the urine. It is impossible to tell simply by looking at the urine whether it contains albumin or not. White of egg before it is boiled is a clear, glairy-looking fluid, and if we were to mix a little of it with urine it would produce no change in its appearance. To ascertain the presence of albumin in the urine, we must submit it to examination. If we take a fresh egg, and break it, we obtain the yolk and the white. If we mix a little of the white with water, and put it in what chemists call a test-tube, and boil it over the gas, or a spirit-lamp, it coagulates, and forms

a thick white deposit. When we wish to examine urine for albumin, we submit it to a similar procedure. We take a test-tube, half fill it with the urine, and then boil it. If we obtain a deposit we may suspect the presence of albumin, but cannot be positive about it, because naturally the urine contains certain salts called phosphates, which if present in large quantities are precipitated on boiling. The presence of phosphates in the urine is of not the slightest consequence, but the presence of albumin is a serious matter: hence the importance of distinguishing between these two bodies. This is easily done by adding a couple of drops of strong nitric acid (aqua fortis) to the boiled urine. If the deposit is due to phosphates it will at once disappear on the addition of the acid; but if it is owing to the presence of albumin it will remain unaltered. The quantity of albumin in the urine in Bright's disease varies very much. We have examined urine which became instantly and absolutely solid on boiling, so that the test-tube could be inverted. As a rule, however, the quantity is much smaller, and sometimes it amounts to little more than a distinct cloudiness. If on boiling a little of your urine in a test-tube, and then adding a few drops of nitric acid, you get no deposit, you may feel pretty sure that you are not suffering from Bright's disease. As a rule, albumin in the urine is of no moment unless it be in some quantity, or is detected on several different occasions. From the almost constant presence of albumin in the urine in Bright's disease, this complaint is often known as "albuminuria."

Even if you find albumin in the urine it does not mean of necessity that the kidneys are diseased, or that the person is suffering from Bright's disease. Albumin appears temporarily in the urine in the course of many fevers, disappearing as soon as the temperature returns to the normal. In women it frequently occurs during the later months of pregnancy. It is caused partly by the altered condition of the blood, which is natural to the pregnant state, and partly by the pressure of the womb on the veins which carry the blood from the kidneys. It does not, as a rule, show itself until the seventh or eighth month, and often not until the approach of labour. It is generally attended with swelling of the lower extremities, and sometimes also of the face and upper parts of the body. Under these circumstances it is usually of little importance, for in the large majority of cases it all disappears in forty-eight, and sometimes in twenty-four, hours after delivery.

Bright's disease may arise from many different causes, one of the most common being the somewhat complex process which is known as

“catching cold.” It is, of course, not every one who catches cold who has an attack of Bright’s, but still on inquiry it will be found that the majority of people who are suffering or have suffered from this disease refer its origin to some exposure to wet or cold. Cold operating slowly and continuously is also a prolific source of Bright’s disease. Persons whose occupations expose them to the inclemency of the season without adequate protection, those who work in hot workshops and are in the habit of going out to cool their heated bodies in the open air, the indigent classes who, insufficiently clad and ill-fed, dwell in damp cellars amidst dirt and squalor, furnish a large proportion of victims to this disease. The abuse of spirituous liquors also ranks high as a determining cause of Bright’s. It is not the habitual drunkard only who exhibits this tendency to kidney disease, but the dram drinker who is in the constant habit of using ardent spirits several times a day without becoming actually intoxicated. Malt liquors, though far less pernicious than spirits, are, when largely indulged in, not without their influence in producing Bright’s disease. In the case of a journeyman baker, the complaint was clearly traced to the patient’s habit of fuddling himself with beer from Saturday night to Monday morning, a practice which he had previously followed for many years. Very frequently intemperate habits go hand-in-hand with exposed occupations, and it hardly excites our surprise to find that a large proportion of cases occurs among labourers, cabmen, carters, hawkers, glass-blowers, smelters, and puddlers. In many instances, the disease is undoubtedly owing to some constitutional taint, such as scrofula; and among the more opulent classes gout is a prominent antecedent.

Bright’s disease may occur either in an acute or in a chronic form. Acute Bright’s disease may arise from any of the causes to which we have already referred, but in a large number of cases it follows an attack of scarlet fever. The functions of the skin are interfered with by the rash and subsequent desquamation, or peeling, and an excessive pressure of work is consequently thrown on the kidneys. It is now well understood that kidney disease is not a necessary sequel of scarlet fever, and that the scarlatinal poison is, under favourable circumstances, eliminated entirely by the skin, so that it is only when the natural course of the disease is interfered with by some disturbing cause, such as exposure to cold, that it is diverted into other channels. The reason why dropsy so commonly follows a mild attack of scarlet fever is that little importance is attached to the disease, and no care is taken to protect the patient from the injurious effects of cold.

There can be little difficulty in recognising the onset of an attack of acute Bright's disease. A boy, we will suppose, has just recovered from scarlatina, and his friends, thinking that an airing will hasten convalescence, take him down the river on the steamboat for a good blow. Towards evening he is very tired, says he feels chilly, and is perhaps sick. The next morning he is worse, and complains of a dull, aching pain in the back and limbs. His countenance is pale and puffy, and wears a heavy, stupid expression, and there is distinct swelling of the limbs and trunk. The thermometer shows that there is fever, the pulse is hard and full, there is no appetite, thirst is excessive, and the skin is hot and dry. The urine is passed in small quantities, and when the doctor examines it he finds that it contains a great deal of albumin; there may even be some blood.

The attack may last for a period varying from a few days to some weeks. One of the earliest signs of a favourable termination is an increase in the amount of urine to three or four pints or more in the course of the twenty-four hours. At the same time the skin becomes moister, and the dropsy gradually decreases. An attack of Bright's disease, such as we have described, is a very serious matter, particularly from its tendency to give rise to lung complications; but nevertheless, in the majority of cases, a favourable termination may be expected.

In every case of acute Bright's disease the doctor should be sent for without delay. As, however, medical assistance is not always at hand, we will indicate the general course of treatment to be adopted. The patient should be strictly confined to bed, should be wrapped up in flannels, and made to lie between the blankets. A large hot linseed-meal poultice should be applied to the loins, and changed every three hours, or oftener if necessary. A hot bath should be given every evening or every alternate evening, to promote the action of the skin; or, when appliances are at hand, a hot-air bath may be advantageously substituted. A "blanket bath" often proves useful. A large thick blanket is wrung as dry as possible out of boiling water, and as soon as it is cool enough to be borne it should be wrapped round the patient, who is then to be covered with bed-clothes, which are to be heaped up over him. In twenty minutes or half an hour the wet blanket should be removed, and the skin quickly dried with a warm soft towel. Respecting the general management of the patient there is little more to be said. The room should be well ventilated, and should be kept at a moderate and equable temperature. At the commencement of the attack there is little desire for food, but considerable thirst—two natural

indications by which we may be safely guided. The diet should be composed chiefly of light farinaceous food, and milk should be administered freely. The action of the kidneys may be materially promoted by getting the patient to drink plenty of water or any simple fluid, care being taken, however, not to allow him to over-distend the stomach by taking too much at a time.

Next, as to the medicinal treatment. If the complaint can be caught quite at its commencement, aconite is the best remedy. It should be administered in the form of the aconite tabloids (T. 1) we have so frequently had occasion to use. The dose is one every ten minutes for the first hour, and subsequently hourly. This treatment should be commenced immediately the nature of the complaint is suspected, and without losing time by waiting for the arrival of the doctor. Even if you are wrong in supposing that it is Bright's disease, no harm will have been done. You are nearly always safe in giving aconite when any one is feverish.

Respecting the subsequent treatment, we have little to add to what we have already said when speaking of the treatment of dropsy. The bowels should be freely opened by compound jalap and bitartrate of potash powder (Pr. 98), the dose of which must be regulated by the age of the patient. For example, a boy of four would require only a quarter of the adult dose. Care should be taken to guard against excessive purging, as it is apt to prove very weakening. Mercury, or any medicine containing that drug, should be avoided, on account of the extreme susceptibility of people suffering from Bright's disease to its action. A very small dose of either blue pill or grey powder would suffice to produce profuse salivation, the occurrence of which would in all probability augment the severity of many of the symptoms, and possibly imperil the patient's chances of recovery. Digitalis or the resin of copaiba will be found useful in increasing the action of the kidneys and diminishing the dropsy. The indications for their employment will be subsequently given. (*See DIGITALIS and COPAIBA in the "Materia Medica."*)

A better and safer remedy is diuretin, which exerts a powerful action on the kidneys, and increases to a very marked extent the secretion of urine. The dose is three five-grain tabloids dissolved in a wineglass of warm water every four hours. When the fever has abated and the dropsy is yielding, the more active measures may be discontinued, or pursued less energetically; but the efforts to restore or maintain the action of the skin should be persevered in. When convalescence is fairly established—and not till then—iron may be given with advantage.

It is best to begin with small doses, and if it agrees to gradually increase them. One or two of the reduced iron tabloids (T. 65) every four hours will be enough to commence with, the full dose being worked up to in time. The action of the iron is to diminish the quantity of albumin in the urine.

When the patient has recovered from his attack, unusual care will have to be taken to guard against a relapse, to which there is always a tendency for a considerable time. The slightest exposure to cold or wet is often sufficient to cause the reappearance of the albumin in the urine, with a repetition of all the old symptoms. When the patient is strong enough to be moved, and the urine has completely regained its normal character, a change of air to a warm sheltered locality is likely to prove highly beneficial, and to hasten the restoration of the impoverished blood.

Sometimes acute Bright's disease, instead of taking its departure and leaving the patient to recover from the effects of the attack, assumes a chronic form. In the great majority of cases, however, chronic Bright's disease is not a sequel of an acute attack. On the contrary, it begins slowly, insidiously, and almost imperceptibly. In very many cases it is not detected, its existence is not even suspected, until it has existed for months, and perhaps for years. At length the patient is awakened to a sense of his condition by the gradual failure of his strength, the increasing pallor and sallowness of his complexion, and his disinclination or even inability for exertion. Perhaps his suspicions are awakened by a little puffiness under the eyes, a slight swelling of the ankles at night, or by unusual frequency of passing water. Sometimes the disease creeps on stealthily in the wake of some pre-existing disorder, such as consumption, gout, constitutional syphilis, or chronic alcoholism. It may remain long concealed, and then suddenly reveal itself in the guise of an acute attack after exposure to cold or a fit of intoxication.

As we have already said, there are several different varieties of kidney disease included under the general term of Bright's, and it is only right we should state that when we speak of the symptoms of chronic Bright's disease we are speaking only in general terms, and that our statements, though in the main correct, may be found to be inapplicable to certain conditions. For example, as a rule, the urine contains albumin, but occasionally, even in confirmed and fatally-ending cases, only the minutest traces may be detected. Again, in the large majority of cases there is dropsy, but occasionally not a sign of effusion can be discovered. Speaking generally, then, we should say the symptoms of

chronic Bright's disease were debility, general impairment of the health, pallor of the face, pain in the loins, a frequent desire to pass water (particularly at night), albuminous urine, and dropsy. It should be distinctly understood that the presence of one or two of these symptoms would not justify us in assuming that the patient was suffering from Bright's disease. It is necessary for the establishment of the diagnosis that all, or at all events a large majority of them, should be present, the most important being dropsy and the existence of albumin in the urine. Delirium, convulsions, or coma, may sometimes occur in the course of Bright's disease, and these symptoms are of the very gravest importance, and require energetic treatment, the exact nature of which must depend on the condition of the patient.

The tenure of life of a person suffering from Bright's disease is undoubtedly somewhat precarious; but still, under favourable conditions and by the use of appropriate remedies, it may be prolonged for several years, the patient enjoying the pleasures and fulfilling the duties of existence very much as other people do. He will have to take the very greatest care of himself, and should always remember that any imprudent indulgence or exposure may quickly reduce him to a condition of the most imminent peril. As a matter of precaution against cold, he should be habitually clothed in flannel, and the activity of the skin should be encouraged by moderate walking or carriage exercise, and the occasional use of warm baths, with friction to the surface. The bowels should be opened once daily, and the diet should be light and nutritious. Milk peptonised with zymine powders nearly always agrees well, and should be taken habitually as an article of food. Two or three glasses of claret or hock daily, or a glass of beer, may be taken; but port and sherry and all kinds of spirits usually do harm, and should be strictly avoided. Iron in all forms proves beneficial, and should be taken at intervals. The tincture of steel, and the iron mixtures (Prs. 1 and 2), and tabloids (T. 15, 38, and 65) are excellent preparations; but the less astringent forms, such as Prs. 3, 4, and 6, may be resorted to occasionally by way of change. To increase the flow of urine a citrate of caffeine tabloid (T. 33) should be taken three times a day, and should be followed by a tumblerful of Rosbach water. The best methods of dealing with dropsy will be subsequently discussed. (*See DROPSY.*)

BRONCHITIS.—Bronchitis may occur either as an acute or as a chronic disease. In the former case there is a sharp attack lasting a few days,

or at the outside a week or two, whilst in the latter the complaint comes on year after year, and may last the best part of the winter. We will first consider the former variety.

Acute Bronchitis.—This disease may occur at any age, but is most commonly met with at the extremes of life. It is a frequent complaint amongst children, especially when they are cutting their first set of teeth, and old people are also very prone to suffer from it. It occurs both in men and women, the former, from their frequent exposures to wet and cold, being more subject to it than the latter. Any constitutional weakness or debility, arising from over-work, under-feeding, or neglect of the natural laws of health, greatly increases the liability to it. It frequently attacks those who are suffering from some chronic illness, such as gout, or diabetes, or Bright's disease. It is a very common cause of death amongst rickety children. One attack of acute bronchitis favours the occurrence of another. The occupations which beget a liability to bronchitis are those which involve much exposure to wet and cold or sudden and marked changes of temperature. Employments which necessitate the inhalation of irritating particles floating in the air, such as cotton, steel, or charcoal, favour its occurrence. It naturally follows that the complaint is commoner amongst those who earn their bread by the sweat of the brow than with the rich and well-to-do. By far the largest number of cases is met with in the autumn and winter months. In summer it is comparatively rare, but from November to March or April it is very common. A sudden change in the weather, or a north-east or east wind, will be sure to bring with it bronchitis.

The immediate cause of bronchitis is, nine times out of ten, cold in some form or other. It acts in many ways—you may get hot running to the station to catch a train, and then sit in a draught from the window; or you may get hot dancing, and then go and cool yourself on the balcony; or you may get wet through, and neglect to change your clothes, or have no opportunity of so doing. Boots that let in the wet are a fruitful cause of bronchitis. Many people get an attack from neglecting to wear flannels or a sufficient amount of warm clothing in the winter; sleeping in damp sheets has caused many a man's death from bronchitis. If you are subject to this complaint, you cannot be too particular in keeping out cold, although you must be careful not to keep out fresh air as well. Living in a close stuffy room soon weakens and makes any person more than ever susceptible to bronchitis. Children who dribble much, and whose garments covering the chest are constantly moist, are very likely to have bronchitis, so that the greatest

care should be taken to keep them dry and clean. London fogs have the credit of being able to excite bronchitis, and with many people they undoubtedly produce great irritation of the bronchial tubes.

Bronchitis varies very much in its severity—sometimes it is little more than a common cold, at others it is so severe as to endanger the patient's life. Usually, to begin with, there is an irritating watery flow from the nose and eyes, and a feeling of fulness, heat, and soreness in these parts, with frequent attacks of sneezing. Very often there is also tension or fulness over the forehead. The throat feels sore and rough; and the patient has to keep on hawking to clear it. The voice is usually affected, and becomes hoarse and husky, so that it seems quite an effort to talk. The patient feels hot and feverish and out of sorts, but the temperature is usually but slightly elevated. The pulse is a little quicker than natural. Sometimes the limbs ache, and the patient seems to have a cold all over. There is a loss of appetite, the tongue is furred, and the bowels are confined. There is a sense of heat or rawness in the chest, particularly beneath the upper part of the breast-bone. Sometimes there is a feeling of tickling which is peculiarly distressing. Cough soon sets in, and usually comes on in fits, either spontaneously or from a draught of cold air, or some other source of irritation. They increase in frequency and severity as the disease progresses, and they are usually worse on first lying down at night or getting up in the morning. There is usually no expectoration to begin with, but this soon sets in; at first it is very slight, and thin and watery in appearance, but after a time it gets thicker and more copious, and assumes a yellow colour. Sometimes it is so thick that the greatest difficulty is experienced in getting rid of it. It sticks about the throat and the back of the mouth in the most distressing manner. Sometimes there are little streaks of blood in it, but that arises from the violence of the cough, and too much importance must not be attached to it. In favourable cases, and when energetic treatment is resorted to, the attack runs its course in from three to five days; but if the patient keeps about in the cold air, and takes no care of himself, it may last two or three weeks, or even longer. There is usually no cause for anxiety: but in rickety children, and in those who are ill-nourished, or the subject of some constitutional disease, it often proves dangerous, and a fatal result may ensue.

Sometimes the inflammation extends to the smaller bronchial tubes, and it then constitutes a very serious condition. This complication is more likely to occur in children than in adults. The onset of the

bronchitis of the smaller tubes, or "capillary" bronchitis, as it is called, is often ushered in by well-marked rigors, severe headache, and sickness. Shortness of the breath is always a prominent symptom. It may be limited to quickened and somewhat laborious breathing, with a feeling of constriction and oppression across the chest, or the respirations may be extremely frequent and hurried, attended with violent efforts during inspiration and an urgent craving for air. Sometimes there is very great wheezing, which may be heard at some distance from the bed. The cough is almost continuous, but it also comes on in extremely violent, prolonged, and distressing paroxysms, during which the face becomes swollen, red, or purple, and the veins swell and the arteries throb and throb again. There is a great deal of expectoration, which is coughed up with the greatest difficulty. There is an exception to this in the case of children, who do not expectorate, or rather swallow what they bring up.

In capillary bronchitis the constitutional symptoms are always very severe. The temperature may rise to 103° Fahr., or more, and the pulse is quick and full. The symptoms may gradually subside, but very often the lips and face, and even the hands and feet, become blue and cold and livid, as the result of the interference with the breathing, and then there is the greatest danger. Cold clammy sweats break out about the face and upper part of the body, and the exhaustion becomes extreme. It is a pitiable sight to see a little child in this condition. Often enough there is intense thirst and craving for water, and soon the mind begins to wander. The cough ceases, the patient is too weak to expectorate, or too ill to feel the necessity for so doing, and gradually the chest becomes blocked up with the phlegm, and then recovery is almost hopeless. Fortunately, capillary bronchitis occurs in only a small number of cases, and ordinarily the symptoms are far less serious.

In the milder forms of bronchitis the patient is usually convalescent in from nine to twelve days; but in severe cases of capillary bronchitis it may be three weeks before convalescence is established. There is evidence to show that bronchitis may lay the foundation of consumption.

Bronchitis, however slight, should never be neglected, because a little care and appropriate treatment may put an end to an attack which might otherwise become very serious, or even lead to a fatal result. A neglected cold may lay the foundation of an incurable disease. The treatment will vary somewhat, according to the severity of the attack; but if you err at all be sure that you err on the side of over-care.

In the first place, it is absolutely necessary to stay indoors. It is very hard sometimes to have to do so, but there is no help for it. It is economy of time in the long run, and the sooner you recognise that fact, the better your chances of a speedy recovery. Your room should be kept warm with a good fire if the weather is at all unfavourable. It is a good thing to try to get yourself into a profuse perspiration, and you had better do this on the first night of your illness. Have a good fire lighted in your bedroom a couple of hours or more before you go to bed. Have an extra supply of bed clothing, and sleep between the blankets. Have your bed well warmed with the warming-pan, and take a couple of hot-water bottles to bed with you. These hot-water bottles should be placed in a flannel bag, and then you can put them against your legs or body without any fear of being burnt. The water should be as hot as possible, and the bottles should be rinsed out with hot water to warm them before being used. You should either have a hot bath just before getting into bed, or you should put your feet in hot water with some salt and mustard in it. Then you should put a good large hot mustard poultice over your chest, and keep it on as long as you can conveniently bear it. If you are a bachelor, and have a difficulty in getting anyone to make a poultice for you, a couple of mustard leaves will do almost equally well, and they are very much less trouble. Then you will want a night-cap—something hot and strong. It does not matter very much what form this takes, but the following is as good as any:—"Beat up an egg with a wine-glassful of sherry, and add it to a basin of hot gruel. Flavour with nutmeg, sugar, and lemon-peel." If you cannot have gruel you can always get spirits and water, and a good stiff glass of gin, brandy, or rum and water, with plenty of sugar, is not to be sneezed at. Directly you have taken it, you should cover yourself up and try to go to sleep. If you take a book and read, it will not do you half so much good, for you will have to keep your arms out to hold the book, and you will never get into a perspiration; so we say cover yourself up and try to get to sleep. You will probably find it very hot, and be tempted to throw off some of the bed-clothes; but you are not to do that on any account, or you will assuredly defeat your object. Many people employ a kind of domestic Turkish bath when they wish to get into a perspiration, and nothing could be better, provided you have the apparatus and know how to use it. Others prefer the wet pack for this purpose, and we have nothing to say against it, for it often answers admirably.

These methods may be used in conjunction with some of the other

measures we have recommended. If taken quite at the beginning, aconite (T. 1) will succeed better than anything. In a severe case of bronchitis this simple treatment may fail to effect a cure, although it will be sure to do some good. If you are very bad you had better keep in bed for a day or two, but if not you may get up and go into your sitting-room. You will find it a good plan to keep a linseed-meal poultice constantly on your chest. It should be put on as hot as you can bear it, and as soon as it gets cold it should be changed for another. In the case of children it is best to have a jacket poultice—that is, a poultice big enough to go over both chest and back. Children should be kept in bed, for they are then more easily managed, and if it does nothing else it keeps them out of colds and draughts.

For adults, inhalations are very useful. The simplest way of inhaling is to get a jugful of hot water, put your mouth over it, and breathe the steam. You should put a towel round the top of the jug, and then you will have something to rest your face on, and you will not burn yourself. Sometimes, when the cough is very irritable, it is a good plan to put a couple of tea-spoonfuls of chloric ether in the water, or one or two crushed vaporoles of ether (V. 2), chloroform (V. 5), or pinol (V. 11). The air of the room may be kept moist by a kettle of water on the fire, and it may be advisable to put the vaporoles in this, so that it gradually becomes diffused.

Respecting diet. If there is much constitutional disturbance, or if the cough is very troublesome, solid food is inadmissible. You should have plenty of good strong beef tea, and, above all, plenty of milk. The milk may be taken cold or tepid, alone or mixed with water or soda-water, as the taste dictates. When it forms the staple article of diet, three or four pints will have to be taken in the course of a day. It must be remembered that it is a food, and should be taken at regular intervals, say every two or three hours, and not at any time when you are thirsty or happen to fancy it. What about stimulants? It is difficult to lay down any positive rules on this point, as so much will depend on the actual condition of the patient. As a rule you will do better without anything; when there is much prostration you will want three or four ounces of brandy in the twenty-four hours, or perhaps more. The brandy may be given in water or mixed with the milk.

In the early stage of bronchitis it is advisable to give a sedative and expectorant mixture such as the following:—

- ℞ Sweet spirits of nitre, four drachms.
Solution of acetate of ammonia, one ounce and a half.
Ipecacuanha wine, two drachms.
Paregoric, two drachms.
Camphor julep, to make up eight ounces.
Two table-spoonfuls to be taken every four hours.

When the more acute symptoms have passed away, and the disease shows a tendency to lapse into a chronic condition, more benefit will be derived from the carbonate of ammonia and senega mixture (Pr. 22) than from anything else. It is very nasty to take, but it does good, and that is the great thing. In the case of adults the monotony of convalescence may be relieved by smoking Cubebs cigarettes. They are not irritating, and by their stimulating effect on the relaxed mucous membrane often speedily get rid of the last remnants of the cough.

Throughout the whole course of the treatment the bowels should be kept moderately open (T. 51), though diarrhœa should be avoided. When there is actually constipation, it is a good plan to lead off with a calomel pill (Pr. 61) at bed-time, followed by a saline draught in the morning.

In capillary bronchitis stimulating treatment is absolutely necessary, and anything that tends to lower the system must be scrupulously avoided. A very good mixture is the effervescing ammonia mixture (Pr. 99) taken every four hours. Children may take the carbonate of ammonia alone, simply dissolved in water and not in a state of effervescence; the dose will vary from one to three grains every four hours, according to age. Chlorate of potash tabloids (T. 29) are often serviceable. The application of mustard poultices or turpentine stupes to the chest must not be neglected. A few drops of chloroform, from ten to twenty poured on the hand and gently inhaled as it evaporates, will do much to relax spasm and facilitate expectoration, but it should never be carried to the extent of producing stupor. The vaporoles of chloroform (V. 5) answer the purpose admirably, and are safe.

In the case of children tartar emetic in small doses often succeeds admirably. The following is a very useful formula:—Take of tartar emetic one grain, water half a pint; dissolve. Of this a tea-spoonful is to be given every quarter of an hour for the first hour, and then hourly. Should it produce vomiting—as it often does—the dose must be reduced. It is especially useful when the child suffers from much wheezing and difficulty in breathing.

When bronchitis occurs in a gouty subject, colchicum wine should be

added to the cough medicine—fifteen drops to each dose. During convalescence tonics, such as quinine (Pr. 9, T. 63), iron (Pr. 1), acid and gentian (Pr. 15), and cod-liver oil, and Kepler Extract, with iodide of iron, should be given. In the summer months, when as a rule cod-liver oil cannot be taken, the Kepler Extract will be found an efficient substitute. The clothing should be warm, and a good stout menthol plaster should be worn over the front of the chest.

Those who are subject to attacks of bronchitis will have to take great care to avoid cold and wet in every shape and form. If possible, a change to a warm climate during the winter months should be enjoined. Cold sponging is useful, especially in the case of children.

We now pass on to the consideration of

Chronic Bronchitis.—This is usually the result of the acute affection, remaining sometimes even after a single attack, but in the majority of cases occurring after several repeated attacks. It is frightfully common, both in London and in the country. It is most frequently met with in those who are exposed to the inclemency of the season. One man, a hospital patient who was under our care, was a hawker, and, in addition to being out in all weathers, had to use his voice in crying his wares. Another was a street ballad-singer. A third was a mason's labourer, who, in addition to often getting wet through without any opportunity of changing his clothes, was not infrequently engaged in demolishing old houses and walls, so that he had to inhale the irritating dust from the dry mortar. It is not confined to men, but may be almost as commonly met with in women. Laundresses are frequent sufferers. They work in hot damp rooms, without very much clothes on, and find it difficult to resist the temptation to go out in the yard or stand at the door to try and get cool. Women who keep open greengrocers' shops suffer in the same way. We might give many other examples of those in whom it occurs; but these will suffice to show that wet and cold are powerful predisposing causes. The complaint is met with most commonly in middle-aged people.

Now, as to the symptoms. In the first place the patient has probably been troubled with cough for many years. During the summer he is pretty well; but during the winter months—from October to March, or even May—he suffers greatly, sometimes without any intermission, occasionally getting a little better and then catching cold, or perhaps he may lose his cough for a few weeks, and then have a return of it from some slight exposure. The cough is very violent, frequent, and hacking, and it often comes on in fits. The paroxysms vary very much in their

severity; they may last only a minute or two, or may continue almost without intermission for five, ten, or even twenty minutes. There may be only one or two attacks in the day, but sometimes the fit comes on two or three times in the course of an hour. The cough is generally brought on by exertion, and in bad cases so easily is it provoked that the patient is afraid to move or even speak. It is generally worse the first thing in the morning on getting out of bed.

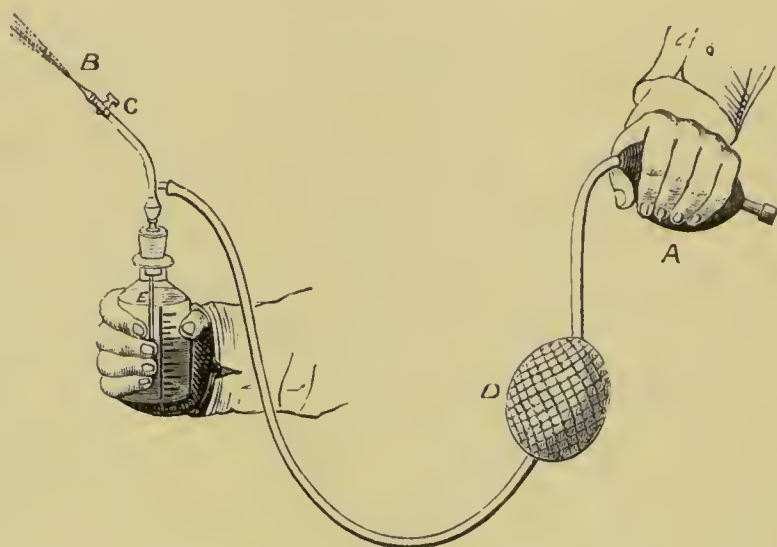
The cough is usually accompanied by expectoration, which is often very abundant. Sometimes it is transparent and watery, but quite as frequently it is thick and yellow. It varies greatly in quantity, and is usually difficult to expel. Occasionally, after a violent bout of coughing, it is tinged with blood; but there is never any real spitting of blood as there is in consumption.

Shortness of breath is always a very prominent and distressing symptom. So short is the breath that often the patient can walk only a few yards, especially in the cold air. He finds it very hard work to get upstairs, and is usually quite unfitted for an active life. The breathing grows worse at night, so that he cannot sleep unless with the head propped up with several pillows. He is troubled, too, with bad fits of shortness of breath, which generally come on at night, last several hours, and constrain him to sit up in bed. Sometimes the breathing is difficult only on exertion, but it—like the cough—is in most cases made much worse by fogs, east winds, or damp.

Wasting is not a prominent symptom as it is in consumption, but still there is nearly always some loss of flesh in winter, which is gradually regained as summer returns. In bad cases the legs may swell. The sufferer from chronic bronchitis usually leads a most miserable existence; for nearly six months out of the twelve he is practically an invalid.

The best method of treating chronic bronchitis is by means of a spray. By a very simple apparatus a liquid can be "atomised," or converted into fine vapour. This process is probably familiar to most of our readers, for it is often used for the diffusion of scent. By inhaling the spray, the drug can be brought into immediate contact with the lungs, the part on which it is required to act. There are several kinds of spray apparatus sold by instrument makers, but "Richardson's" is the one most commonly used for this purpose. It is very simple, and the accompanying figure requires but little explanation. The bottle is about two-thirds filled with the liquid it is desired to atomise, and on

squeezing the india-rubber ball (A) several times in succession the spray issues from the nozzle (B). A small tap (C) is usually placed just behind the nozzle, and must of course be open. The second india-rubber ball (D) acts simply as a reservoir, and serves to make the jet uniform. The end of the tube (E) is covered with linen, or has a little piece of sponge attached, to filter off any particles that may be floating about in the liquid and might block up the apparatus. The best substance for spraying in chronic bronchitis is ipecacuanha wine. It is too strong to be used alone, and it should be diluted with twice the quantity of water. It is as well to use tepid water, as the spray is then pleasanter to inhale. At first



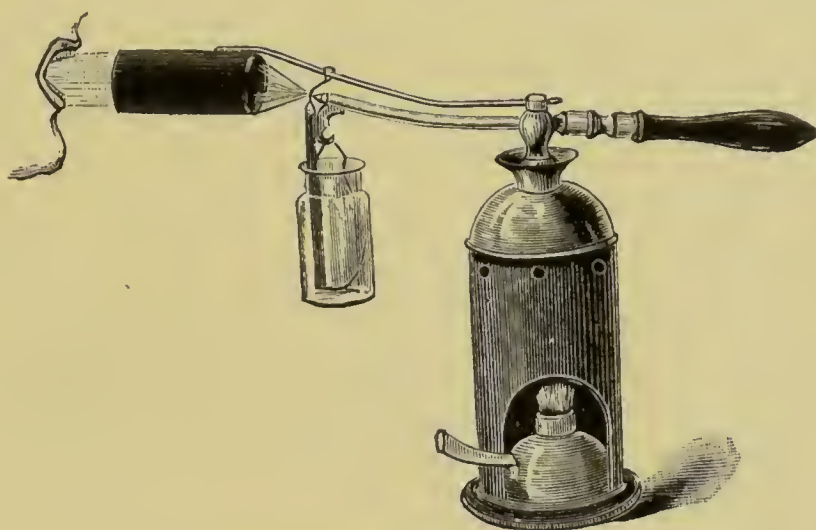
RICHARDSON'S SPRAY APPARATUS.

the nozzle of the apparatus should be placed about a couple of feet from the patient, but it may gradually be brought nearer. If much fluid collect in the mouth, it should be spat out and not swallowed, or it may cause nausea or even vomiting. The duration of the inhalation will depend on the quantity of spray produced by each compression of the elastic ball, and to a certain extent on the susceptibility of the patient to the action of the drug. It is a good plan to begin with about twenty squeezes, and to gradually increase the number at each sitting. It is seldom necessary to give more than sixty or seventy squeezes at one time. After every three or four squeezes, especially at the commencement, it is advisable to pause for a while. It is necessary to see that the tongue is not arched up against the roof of the mouth, or it will hinder the passage of the spray into the lungs. The spray should be taken well into the chest, or it will not do much good. The best way is to take a good deep breath, so as to get as much of the vapour as possible. The inhalation

should be used twice daily, night and morning, for the first week, then once a day for another week, and after that the intervals may be gradually extended as the patient gets better.

An improvement on the hand-ball spray is the "Complete Steam Atomiser." It is very compact, and is very substantially made. The vapour given off is in the form of fine warm spray, which does not irritate the bronchial mucous membrane. The ipecacuanha wine, which proves so useful in these cases, is placed in the receptacle below the vertical tube, and is rapidly diffused.

The benefit derived from the use of the ipecacuanha spray in chronic



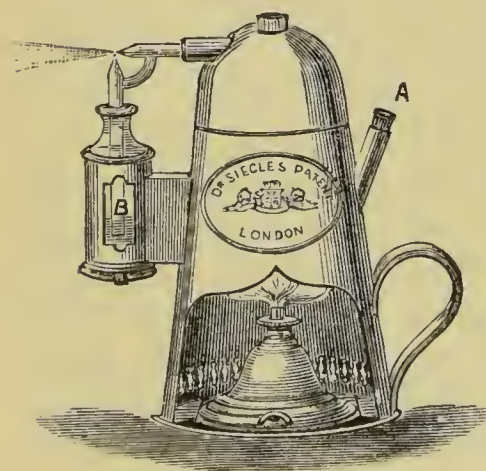
COMPLETE STEAM ATOMISER.

bronchitis is very great. The shortness of breath is the first symptom relieved. The night after the first spraying the patient usually has a fair night's rest, although, for months before, sleep may have been broken by shortness of breath and coughing. The difficulty of breathing on exertion also quickly abates, and in a few days the patient can get about with comparatively little difficulty. A marked improvement takes place after each inhalation, and, unless the patient is unfortunate enough to catch a fresh cold, he progresses steadily. Patients have told us that in a week's time they could walk two miles with less distress of breathing than they could have walked a hundred yards before the spray was employed. In some instances two or three days elapse before any noticeable improvement takes place—this comparatively slow effect being sometimes due to awkward inhalation, so that but little ipecacuanha passes into the bronchial tubes. The effect on the cough and expectoration is also very marked, these both greatly decreasing in a few days,

though the improvement in these respects is rather slower than in the case of the breathing. Sometimes for the first few days the expectoration is rather increased, but it speedily alters in character, so that it is expelled much more readily, and thus the cough becomes easier even before the expectoration diminishes. The patient is soon enabled to sleep at night with his head lower, and in a week or ten days, and sometimes earlier, can do with only one pillow—an improvement which occurs in spite of fogs, damp, or east winds; even, indeed, whilst the weather gets daily worse, and when the patient is exposed to it the chief part of the day.

Sometimes, just at first, an inhalation may excite a fit of coughing, which generally soon subsides; but should it continue, a weaker solution should be used. The patient soon becomes accustomed to it, and inhales the spray freely into the lungs. At first he often inhales the spray less adroitly than he learns to do afterwards, and he is apt to arch his tongue so that it touches the palate, and consequently less enters the chest than when the tongue is depressed. This difficulty may usually be overcome by holding the nose whilst the spraying is in progress. The spray may produce dryness or roughness of the throat, with a raw sore sensation behind the breast-bone; but this is temporary, and soon passes off. Sometimes the spray produces a certain amount of discomfort; but, on the other hand, many people who are hoarse recover the voice after the first inhalation.

Sometimes the old-fashioned Siegle's spray apparatus works well, but it is not so reliable as the "Complete Steam Atomiser" just described.



SIEGLE'S SPRAY APPARATUS.

It has this advantage over the hand-ball apparatus, that it works by steam, and the trouble of squeezing the ball is avoided. The boiler is filled with hot water through the opening at A, and then closed by the cork; the ipecacuanha wine, diluted with water, is put in the bottle at B, the lamp is lighted, and in a minute or two the spray is given off. Many people have a great objection to the smell of the spirit used in the lamp, but this can be removed by adding to it a few drops of scent. There is no danger of the boiler bursting, as should

the pressure become too great, the cork would be blown out. After each inhalation a little clean water should be sprayed through the apparatus to

clean it, and the boiler should always be emptied before it is put away. The quantity to be used with the Siegle is at each sitting from one to two of the little bottlefuls of the ipecacuanha wine and water — one part of the former to two of the latter.

Although we have assigned to the ipecacuanha spray so prominent a place in the treatment of chronic bronchitis, it must not be supposed that it is the only spray which can



IMPROVED ATOMISER.



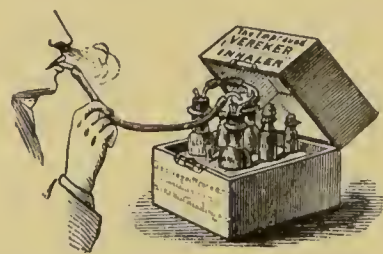
ATOMISER FOR PURE TEREBENE, PINOL, ETC

be used for this distressing complaint. Pure terebene, pinol, and many other drugs may be employed in a similar manner. In some cases it may be desirable to employ special forms of atomiser for the diffusion of these drugs. The accompanying figures are adapted from Dr. Murrell's book on "Chronic Bronchitis."

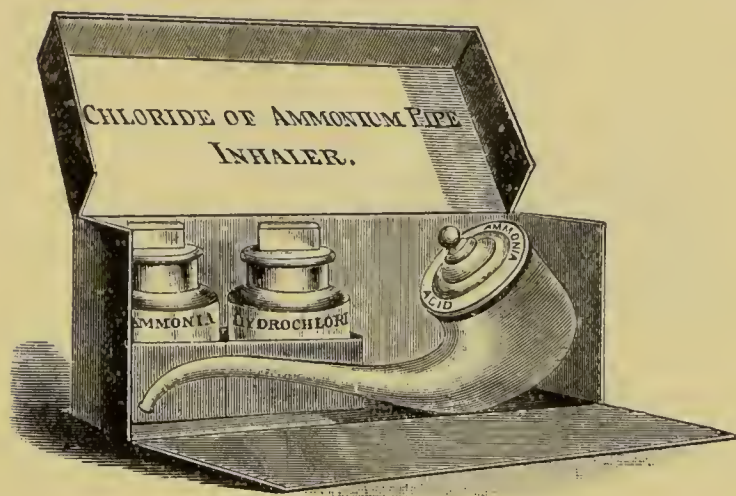
The Vereker Chloride of Ammonium Inhaler is especially useful when the phlegm is thick and tenacious, and can be expectorated only with difficulty. It should be used for ten minutes three times a day. It is a little bit difficult to manage, but it is well worth a trial. The accompanying figures give a good idea of the apparatus.

There is another form of chloride of ammonium apparatus known as the Pipe Inhaler; but, as a rule, it is less popular with sufferers from bronchitis.

Sometimes it may be inconvenient or impossible to use a spray; then a mixture must be given. This often happens in the case of poor people who have not the means to purchase the spray apparatus. Very frequently carbonate of ammonia succeeds admirably, and it may be conveniently given in combination with senega, as in Pr. 22. This mixture is especially indicated in chronic bronchitis occurring in old people. When the secretion is thick and abundant, its efficacy may be increased by the addition of ten grains



VEREKER CHLORIDE OF AMMONIUM INHALER.



CHLORIDE OF AMMONIUM PIPE INHALER.

of chloride of ammonia (T. 32) to each dose, or Pr. 36 may be used. Sometimes a solution of chloride of ammonia is used for spraying, but it is decidedly inferior to the ipecacuanha.

An old-fashioned though very serviceable remedy is Friar's balsam. It should be taken three times a day, in half-teaspoonful doses, either beaten up with the yolk of an egg or suspended in mucilage. It is very useful in old-standing cases. A tea-spoonful may be put in a jug of boiling water and the steam inhaled. Nearly all resinous bodies seem to be useful in chronic bronchitis.

Ammoniacum often does good. There is an ammoniac mixture in the British Pharmacopœia, and the dose of this is from half an ounce to an ounce every four hours.

When in long-standing cases there is a great deal of expectoration,

the compound mixture of iron, or Griffith's mixture, as it used to be called, may be used with advantage. One or two table-spoonfuls should be taken every four hours. It is supposed to owe much of its efficacy to the myrrh that it contains.

Tar often does a great deal of good in this complaint, and on the Continent it is a very great favourite. There is not the slightest objection to using it in conjunction with the ipecacuanha spray. Most chemists keep tar-water, and this is not very disagreeable to take. The small tar tabloids, containing one grain in each, often answer admirably. Another good preparation of tar is the syrup of tar of the United States Pharmacopœia. The dose is a tea-spoonful in water every four hours. The *Dragées de Christiania au Goudron de Norvège* have acquired a high reputation on the Continent.

Creasote is another capital remedy; a linctus may be made by adding four drops of creasote and four drachms of glycerine to four ounces of water (Pr. 58). Two or three tea-spoonfuls of this may be taken several times a day. It speedily eases the cough, but has less influence on the breathing. The creasote and opium mixture (Pr. 23) is also useful.

The occasional application of iodine to the chest, and especially to the back, does good by diminishing the cough and lessening expectoration. Amber oil rubbed into the chest and back every night at bedtime is excellent. The smell is not very agreeable, but it is efficacious.

In very chronic cases the fluid extract of chicken—a tea-spoonful in a wineglass of water—answers better than any other remedy.

When expectoration is difficult, especially in the case of old people, Munro's elixir of terpene will be found useful.

When the lungs have become emphysematous or distended, the inhalation of compressed oxygen often works wonders, but this is a mode of treatment to be resorted to only under the guidance of a medical man.

In the great majority of cases of chronic bronchitis a general tonic plan of treatment is necessary. In addition to the remedies directed to the relief of the cough, a course of quinine (Pr. 9) or of acid and gentian (Pr. 15) often proves of service. The quinine may sometimes be given in combination with iron (Pr. 11). The oxide of zinc pills (Pr. 66) are also useful in some cases. When there is a great deal of expectoration, resulting in loss of flesh and strength, cod-liver oil is of essential service. Pancreatic emulsion is a useful remedy in chronic bronchitis, particularly when given in conjunction with cod-liver oil. A table-spoonful of cod-liver oil should be taken directly after breakfast, and a tea-spoonful of the emulsion in a tumbler of milk, with a table-

spoonful of brandy, two hours after dinner. If cod-liver oil disagrees, the Kepler Extract may be given immediately after breakfast, and again after dinner.

The general management of the health also requires careful attention. It is very important to avoid sudden changes of temperature—as in going from a warm room to one without a fire. The sufferer from chronic bronchitis should always wear a respirator out-doors if it is at all damp or foggy. On really bad days it is almost impossible to go out. Different forms of bronchitis require different climates, but in every case it is desirable to ensure a tolerably warm temperature, without sudden changes, a moderately high altitude, and protection from cold winds. When there is cough without much expectoration, a soft relaxing atmosphere with moderately high temperature is recommended. When the expectoration is abundant, the patient is advised to resort to a dry, hot, and more or less stimulating climate. In this country people with chronic bronchitis usually go to Torquay, Penzance, Bournemouth, Grange, Clifton, or Tunbridge Wells. Abroad, the chief resorts are Mentone, San Remo, Pisa, Rome, Cannes, Algiers, and Corfu. Plenty of warm clothing will have to be worn, with flannel next to the skin. A warm bath or Turkish bath should be employed from time to time. When the weather permits, moderate exercise is advisable. The diet should be at all times nutritious, especially if there is much emaciation. The bowels will have to be regulated if they fail to act naturally.

BRONZED SKIN, OR ADDISON'S DISEASE.—This is a comparatively rare disease. The most prominent characteristics are marked bloodlessness, coming on without any apparent cause, excessive and progressive weakness, a feeble and perhaps rapid pulse, faintness on the least exertion, pain in the region of the stomach shooting through to between the shoulders, a pearly aspect of the whites of the eyes, loss of appetite, sickness, flabbiness of the limbs, or perhaps loss of flesh, and a brownish or dingy discoloration of the whole surface of the body. The browning, or bronzing, is not diffused uniformly over the surface of the skin, nor have the darker parts any definite outline. It occupies principally the front of the body and of the limbs, and is usually most marked about the face, neck, arms, armpits, and around the navel. Spots that have been blistered become very dark, as do sometimes the rings made by the pressure of the garters. The colour varies considerably in intensity. Usually the skin assumes a dingy or smoky hue, somewhat like the

stain produced by the juice of walnuts; but in one instance we are told that the patient was so generally and deeply darkened that but for his features he might have been mistaken for a mulatto.

This is often a serious complaint, and no time should be lost in consulting a doctor. You must be careful not to mistake a slight attack of jaundice for Addison's disease. In jaundice, the whites of the eyes have a yellow tinge, and the urine is distinctly light-coloured. Moreover, you must not confound it with a skin disease called *chloasma*, which forms light-brown spots on the surface of the body. The margins of these spots are well marked, whilst in Addison's disease the bronzing has no definite outline.

We may take this opportunity of mentioning that in women a little darkening of the skin occasionally occurs as a temporary condition, and is of not the slightest importance. Some women always get a little darker at the menstrual periods or when in the family way. The case is recorded of a lady who began to get brown as soon as she became pregnant, and before the termination was as black as a negress. After delivery the colour gradually disappeared. Fortunately, such cases are rare, although a brown stain may often be noticed on the forehead in women who are pregnant, or who are suffering from some derangement of the womb. Everyone must have noticed the dark rims under the eyes which many people present when they are a little out of health. Young ladies in their first season often exhibit this symptom, and it is not uncommonly a source of anxiety to mothers. It is, however, easily got rid of. A gentle galvanic current passed through the part from a battery will in most cases remove it in a few minutes.

BRUISES.—A bruise, or contusion, is an injury inflicted by some blunt instrument without breaking the skin. Bruises vary much in severity, but it is only in the more serious forms that it is necessary to call in a doctor. Ordinarily, a little simple treatment will soon set things right again. Tincture of *arnica* is one of the very best remedies, and its use is indicated in all injuries arising from mechanical violence. It is not to be used undiluted, but a lotion should be made by mixing one part of the tincture with ten of warm water. It should be applied immediately by saturating a piece of lint with it, and then covering it with a rather larger piece of oiled silk to prevent evaporation. An infusion or decoction of *arnica*, when it can be obtained, succeeds even better than the tincture. In addition to the external application, tincture of *arnica* should be taken internally. A tea-spoonful of the

tincture should be put in an eight ounce bottle of water, and of this a tea-spoonful should be given every two or three hours. Arnica succeeds admirably in allaying the pain caused by getting the finger jammed in the door. The sooner it is used after the receipt of the injury, the more likely is it to do good. There is never any advantage in waiting till the discoloration of the skin makes its appearance. The part should be kept raised, and should of course not be used. The arnica lotion, if employed at once, will do much to ward off the occurrence of a black eye. For internal bruises, arnica is a most excellent remedy, speedily neutralising the ill effects of blows, falls, and other mechanical injuries. In cases of shake, concussion, and shock, resulting from railway accidents, it is also very serviceable.

In the case of people subject to erysipelas, hazeline, which is a fluid distillate of *Hamamelis Virginica*, the American Witch Hazel, may be used instead of arnica. An ounce of hazeline should be mixed with eight ounces of water, and of this three tea-spoonfuls should be taken every two or three hours. A hamamelis lotion may be made by adding two tea-spoonfuls of hazeline to half a pint of water. It is to be employed in the same way as the arnica lotion. This hamamelis lotion will do much in removing the discoloration of a black eye.

When after a bruise the pain and tenderness have subsided, it is a good plan to apply a bandage to restore tone to the injured tissues. It often proves beneficial to use a cold douche, followed by warm friction.

BUNIONS.—Bunions are nearly always the result of badly-fitting boots. Rightly to understand their mode of production, it is necessary to revert for a moment to the natural form of the foot, uninfluenced by the distortion produced by modern boots and shoes. If you look at the foot of a London Arab, or any little shoeless urchin you may come across, you will be surprised to find what a beautiful structure it is. You will see that the big toe is in a straight line with the inner side of the foot. There is a distinct interval between the big toe and the next, so that they do not touch at all. There is a smaller though very appreciable interval between the second and third toes, and you will notice that when the weight of the body is thrown on the foot, the third and fourth toes are not in contact. Now compare this with the foot of anyone who has been accustomed to wear tight-fitting boots all his life, and you will see what a difference there is. All the toes are screwed up together like a bunch of carrots, the second or third toe is sticking up over the others, whilst the little toe is pushed

under, quite out of sight; the big toe is no longer in a straight line with the inner margin of the foot, but forms a distinct angle with it. We have seen people's feet that have really been quite painful to look at, from the distortion they have undergone. We are fond of laughing at the Chinese for some of their customs, but we should do well to look at home before becoming too critical. It is a curious circumstance that we, wise people as we think ourselves, should consent to distort our feet and make ourselves miserable with corns and bunions just to please other people; but we do. We should never think of wearing tight uncomfortable boots if it were not for "the look of the thing." The shape of modern boots is purely conventional, and is not at all adapted to the natural form of the foot. Boots to fit properly—we mean really properly—must have square toes, and should not be made to taper off to a point. There is no reason why a comfortable boot should be ugly, and some of the prettiest boots we have seen have been constructed with a due regard to the natural shape of the foot.

In addition to the direct effect produced by the pressure of misshapen boots, the material of which they are made often exercises a predisposing influence on the formation of bunions. Patent leather, or any material like it which prevents the evaporation of the perspiration, must exert an injurious effect.

There undoubtedly exists in many persons an hereditary tendency to the formation of bunions, which nothing but the greatest attention to the shape and construction of their boots will overcome. Though generally situated over the first joint of the great toe, bunions are not infrequently developed over bony prominences in other parts where the natural conformation of the foot fails to correspond with the artificial and arbitrary shape of the shoe.

In its early formation a bunion generally attracts attention as a painful and tender spot, on some point exposed to pressure and irritation by distortion of the toes. By-and-by the part enlarges in consequence of an effusion of fluid, the design of which is obviously to protect the part from undue pressure. The irritation continuing, inflammation is set up, causing progressive enlargement, with possibly the formation of matter. Sometimes this matter is discharged, leaving a nasty ulcer which is very difficult to heal.

It is only in the early stage of a bunion that treatment is likely to effect a complete cure, though palliative measures are practicable at all times. The tender spot preceding the formation of a bunion should be covered at night with wet lint and oiled silk, whilst care should be

taken to see that the boots are wide in the sole and not sloped off on the inner side towards the middle line of the foot. Should the part be very tender, it may be covered with soap plaster spread on kid or wash-leather. When the formation of fluid has already occurred, steps should be taken, in addition to the above precaution, to procure its absorption by painting the part with tincture of iodine. As soon as one coat has cleared off, another should be applied. Sometimes it is advantageous to use the iodine liniment, which is stronger than the tincture, but it will have to be applied less frequently, and with greater caution. If there be inflammation of the part, a hot foot-bath, followed by linseed-meal poultices or water-dressing, will prove of service. Benefit is sometimes experienced from hazeline lotion made by mixing an ounce of hazeline with eight ounces of water. It should be applied on lint, covered with oiled silk, and its use should be continued for three or four days. Tincture of *Veratrum Viride*, painted on inflamed bunions, often gives speedy and lasting relief.

It is the custom with many people who suffer from bunions to wear boots made to fit accurately their distorted feet. The wearing of a shoe so constructed as to aid in the restoration of the toes to their natural position is recommended; except in cases of very extreme distortion of the joints, the sole should be cut exactly as if the toes were in their natural position.

CANCER.—Our remarks on this subject must necessarily be brief, not because cancer is a disease of little importance, but because, on the contrary, it is of so serious a nature that it is unsuited for domestic treatment. It may, however, be of interest to consider the circumstances which conduce to the development of this disease. As we all know, cancer, or carcinoma, as it is technically called, attacks many different parts of the body. At present, however, we shall not speak of cancer of any particular organ, but of cancer in general, referring to the local manifestations only incidentally. There is scarcely an organ or tissue in the body which is not liable to be attacked by this terrible foe: it may be found in the brain, the eye, the lips and face, the lungs, the stomach, the bowels, the liver, the kidneys, the breast, the womb, the bones, and some other parts. The regions most frequently attacked are the womb, the stomach, and the female breast.

There is a very prevalent opinion that cancer runs in families, and undoubtedly many cases occur which favour this view. Thus the first

Napoleon died of cancer of the stomach, and so did his father and sister. When, however, the evidence as to cancer being hereditary is investigated on a large scale, there is found to be very little in it. Out of 278 cases of cancer, it was found that in one instance only had the patient's father or mother died of that disease. Many people seem to imagine that because one of their parents died from cancer, they are doomed to suffer the same fate—an opinion for which there is not the slightest foundation.

Cancer is a disease which is common to all ranks of society, from the highest to the lowest. Not only are the richest and poorest alike subject to it, but so are the worst and best fed, those who are living under the most favourable atmospheric conditions, and those who are immured in the worst, those who are cleanly, and those who have a wholesome dread of soap and water, those of all temperaments and all occupations, those who are apparently healthy, and those who are never well. It may attack people of any age, from the baby at the breast to the nonagenarian. Speaking generally, however, cancer may be said to be a disease of middle and advanced life, for it comparatively rarely visits those who have any claim to be considered young. Cancer is more common in women than in men, and it is said to occur more frequently in those who are unmarried than in those who have taken upon themselves the cares and pleasures of matrimony.

Depressing mental emotions are said to give rise to, or at all events favour the production of, cancer. It would seem that the body weakened, and its vitality lowered, by worry of mind falls an easy prey to the invading disease. An eminent surgeon recording his experience on this point says:—"I have seen so many cases of cancer, more particularly of the abdominal organs, in individuals who had suffered from grief, anxiety, harass of mind, for years before the development of the malignant disease, that although the doctrine is incapable of proof, I cannot but look upon it as probable that the cancer was the result of the antecedent, long-continued disquietude." The moral is "Don't worry."

Curiously enough, cancer appears to occur with very varying degrees of frequency in different parts of the world. It is certainly more common in Europe than in any other continent. In some parts of North America and China it is also frequent, whilst in South America, in Africa (except Egypt), and the greater part of Asia it is not of frequent occurrence. In England, cancer is least common in the north-western and western parts of the kingdom, including Wales, but throughout the

most elevated southern and middle districts it is common. It has been pointed out that the distribution of cancer follows the course of the great rivers after their formation, when they are passing through the low-lying valley lands liable to overflowing and its attendant dangers. There is no evidence to show that cancer is influenced by the density of the population, or that it is proportionately of more common occurrence in large towns than in country districts. There is reason for believing that its prevalence increases with the advance of civilisation.

It is sometimes said that cancer may arise from a blow or kick; but this is very doubtful. At all events, in such cases the patient must have been very strongly predisposed to cancer. Many women are apt to attribute the origin of the complaint to a squeeze on the breast, and to reproach themselves on this score. We must admit that we have some difficulty in believing that such a trivial cause could be in any way operative; if it were, the disease would undoubtedly be more common.

As a rule, there are no precursory symptoms of cancer, and in the majority of cases the first sign is the detection of some growth or tumour. After a time it is noticed that the patient is getting thinner, and day by day weaker and more deficient in muscular power. The appetite is generally bad, and often the patient takes scarcely anything to eat. The skin becomes loose, and acquires a peculiar lemon or straw colour, which can be distinguished from the yellowness of jaundice by not affecting the whites of the eyes. There is often great depression of the spirits, but the intellect remains unimpaired.

And do these symptoms indicate the presence of cancer? Certainly not, for the majority of them are common to, we might almost say dozens of complaints. We are seldom warranted in deciding that a case is cancer unless we can detect the presence of a tumour. And if, then, a tumour is found, is it cancer? Again no; decidedly not. There are many swellings and tumours which are of the most innocent description, and never do anybody harm. It is most likely that that lump you have been worrying yourself about, and thinking was a cancer, is of not the slightest importance, and will disappear in time. There are "fatty tumours," lumps of fat, and all kinds of things that anybody who is not a doctor might mistake for a coming cancer. But you have been losing flesh, have you? Well, and what then? You cannot expect to be the same weight all your life. Your weight fluctuates more or less just as everything else does. Sometimes you gain a little, and sometimes you lose. We will be bound that if you got yourself weighed

you would find that you had not lost a pound in a month. But your appetite has fallen off? Well, we do not wonder at it. The fact is that a change of air would do you more good than anything. A few days at Brighton or Ramsgate would soon set you up again; even Saturday to Monday is better than nothing. But you are looking yellow? Dare say you are, yellow as a guinea. It is just what we should expect when you are cooped up in-doors all day. But if you really feel anxious about the swelling, go and see a doctor by all means, and get him to examine it. Tell him just what you think about it, and in all probability he will be able to set your mind at rest on the subject.

As to the treatment of cancer, that is a subject on which it is impossible for us to speak in detail. It would not benefit you in the least if we were to enter into a discussion as to what cases are benefited by an operation and what are not. This is often one of the most difficult points which a surgeon has to decide, and he can arrive at a correct conclusion only by an attentive consideration of all the circumstances of the case. We may mention, however, that very frequently the pain may be temporarily relieved by the use of opium or morphia. Sometimes ten grains of chloral, or Pr. 37, taken three times a day, will succeed better than opium. The pain of cancer when the skin is broken so as to leave a painful irritable sore may be relieved by playing vapour of chloroform on the raw surface, the immunity from pain often lasting several hours. Of course it is understood that it is the vapour of the chloroform which is to come in contact with the sore, and not the liquid itself. A starch poultice, from its soothing, unirritating properties, often relieves the pain when applied to an open cancer. When the disease attacks the bowels or the adjacent organs, the pain may be mitigated by the use of large injections of warm water, which also often prove successful in relieving the distressing straining and desire to evacuate the bowels, of such frequent occurrence under these circumstances.

In connection with the treatment of cancer we would utter an emphatic warning against the quacks who pose as "Cancer Curers." For some reason or the other the tribe seems to have been on the increase of late, and the effrontery and persistence with which they press their fraudulent claims shows how accurately they estimate the credulity of their victims. A woman, when she is told that she is suffering from a "tumour," apparently loses all control over her reasoning powers. In spite of the advice of her friends and their most earnest entreaties, she casts aside her common sense, knowledge and

experience of life, and pins her faith on the word of some designing quack, whose ignorance is as palpable as his shamelessness, and who has not the slightest claim to respect or consideration. Many of these men are not only quacks, but blackmailers in addition. Women are usually unable to protect themselves, but if they have a brother or other male relative, he may perform a useful act and a public duty. Legal proceedings are perfectly useless, as the victim will never prosecute. What is wanted is the expenditure of a little physical force, well and judiciously employed. There is not the slightest fear of the Cancer Curer seeking legal redress. He has a wholesome horror of the law.

One of the most recent crazes in connection with the treatment of cancer is the administration of globules supposed to contain "green," "red," or "blue" electricity. It need hardly be said that this is a classification of electricity quite unknown to scientists. Before adopting any special line of treatment the patient should consult his doctor, who from the nature of his early training and his general knowledge of therapeutics will advise wisely.

It is possible that under some circumstances electricity might prove of use in the treatment of cancer, but it should be applied only by a doctor or under his immediate supervision. Electrical belts and all such appliances are worse than useless.

The tincture of *Hydrastis Canadensis*, or golden seal, has attained a reputation in the treatment of some cases of cancer. It has been extolled in the treatment of cancerous tumours of the breast. It should be given internally, and used as a local application. A lotion may be made by mixing a drachm of the tincture with half an ounce of glycerine, and this should be applied or rubbed in in small quantities several times a day. A better lotion is made by dissolving ten grains of chloride of hydrastia (hydrastia being the active principle of hydrastis) in eight ounces of water.

In some cases satisfactory results have followed the long-continued administration of small doses of arsenic, as, for example, a tea-spoonful of the arsenic mixture (Pr. 40) every four hours. Its internal administration should be combined with the local application, where possible, of a lotion made by adding six tea-spoonfuls of the mixture (Pr. 40) to half a pint of water.

Chian turpentine has been recommended as a remedy for cancer, and some successful cures have been reported. It is made into pills according to Pr. 101. Two pills are taken every four hours, and the treatment must be continued for many weeks.

CANCER OF THE STOMACH.—We purpose entering very briefly into the consideration of this subject, not because it is of little importance or of infrequent occurrence, but because the patient must of necessity at some time or other in its progress come under the care of a medical man, and we feel assured that the earlier he seeks professional advice, the better it will be for his welfare.

In the first place we must consider the predisposing causes of cancer of the stomach. There is no doubt that it may be hereditary. In support of this statement the case is often quoted of the first Napoleon, who died of cancer of the stomach, as did his father and sister. It is a great mistake, however, for people who may have lost one or more near relatives from cancer to suppose that they are doomed to die of the same horrible disorder. It is nothing of the kind; and it is the opinion of many of the most eminent physicians and surgeons of the day that cancer of the stomach is far less likely than any other form of cancer to be hereditary. Moreover, unless a *post-mortem* examination was made, it is very difficult to assert positively that the disease was actually cancer. There are several morbid growths which in the symptoms they produce are very like cancer, but a tendency to which it cannot be supposed for one moment is capable of transmission. We recently saw in a hospital an old man who was supposed by everybody to be suffering from cancer of the stomach. He died; and at the *post-mortem* examination we found that there was no cancer at all, and that death had resulted from a large ulcer. The poor fellow had no friends, but we can readily imagine that in many cases a knowledge of the fact that the sufferer had died of a non-hereditary complaint would be a great comfort to the survivors. We would earnestly impress upon you the necessity of not attaching too much importance to the existence of a cancerous taint in your family.

Cancer of the stomach occurs with about equal frequency in men and women. It is very rare under the age of thirty, and the greatest predisposition to the disease is met with in people between the ages of sixty and seventy. Among the exciting causes of cancer of the stomach are usually mentioned errors of diet, brandy drinking, and mental anxiety; but their influence is, to say the least of it, very problematic.

Patients suffering from cancer of the stomach often present a peculiar yellow colour, they become languid and weak, they emaciate, and exhibit other signs of profound constitutional disturbance. It must not be forgotten that these symptoms are common to many diseases, and that to the unpractised eye the pallor of anæmia is readily

mistaken for the cachexia of cancer. Pain at the pit of the stomach is absent in very few cases. It is usually a very marked symptom, and is often lancinating in character, but there is nothing peculiar about it which would serve to distinguish it from the pain caused by indigestion or any other disorder. Loss of appetite and vomiting are of constant occurrence in cancer as in many other diseases of the stomach, and the vomited matter is frequently mixed with blood. None of these symptoms will serve to indicate positively the existence of cancer; in fact, it is the rule with most medical men not to diagnose the existence of cancer of the stomach unless they can detect the presence of a tumour in the abdomen.

As we have already pointed out, it is often a most difficult matter to distinguish between ulcer of the stomach and cancer. If the patient is under thirty years of age, if he is fairly healthy in aspect, if he is not wasted much after an illness of some duration, if there are marked variations in his condition, he is probably not suffering from cancer. Copious bleeding from the stomach is in favour of ulcer *versus* cancer.

Cancer of the stomach is so essentially a disease which must come under the care of a medical man, that it would be superfluous to enter into the subject of treatment. We may, however, mention that when incessant vomiting is the prominent feature, temporary relief may be obtained by giving, in very small quantities, iced milk peptonised with zymine powders. In any case in which cancer is suspected, the sooner the opinion of the doctor is taken the better.

CARBUNCLE.—A carbuncle is a far more serious matter than a boil. A boil is no joke, but still it is a very trivial matter compared to a carbuncle. A carbuncle is a large flat circumscribed, very hard, and very painful tumour, of a purplish-red colour, and attended with a sensation of burning heat. It may reach three or four inches in diameter, or even more. It usually gives rise to the formation of a deep slough, and the total destruction of the skin which is involved. It is evident that boils and carbuncles are closely allied, for they are usually prevalent at the same time. Moreover, occasionally a carbuncle results from the confluence of two or three boils which have arisen near each other. By many doctors a carbuncle is considered to be nothing more than a large boil, and there is undoubtedly much to favour this view. A carbuncle may be distinguished from an ordinary boil by being less clearly defined in its margin, by being less conical in the centre, and for its size, less prominent

on the surface. Moreover, it perforates the skin by several apertures, and extends more deeply than a boil; the redness of the skin is of a more livid hue, the pain is more severe, and it is accompanied by more constitutional disturbance.

Carbuncle is often a very serious complaint. At first sight one would hardly feel inclined to credit the fact that every year in England alone between two and three hundred people die of carbuncle.

Carbuncles occur more than twice as often in men as in women. They are met with chiefly in advanced life, in corpulent males, and in people who have lived freely. A carbuncle in a person under twenty is a rarity. The disease attacks all ranks of life, but the upper classes are more liable to it than the ill-fed and over-worked poor. Carbuncles are in the majority of cases of constitutional origin, and frequently the only cause that can be assigned is a condition, on the one hand, of general debility, or, on the other, of plethora. Some people exhibit a remarkable predisposition to this form of disease. By many it is supposed that carbuncles arise from eating the flesh of animals who have died of pleuro-pneumonia.

Carbuncles may appear in almost any situation, but they most commonly affect the hinder parts of the body, and more especially the nape of the neck, the shoulders, and the buttocks. A carbuncle is usually most dangerous when it appears on the scalp.

A carbuncle usually begins as a painful inflammatory swelling, hard to the touch, red in colour, obtusely conical in shape, and ill-defined in its boundaries. It gradually increases in extent and hardness, and after a few days the colour becomes darker, the more prominent parts being of a livid red. Presently a little blister forms, and when this bursts, the skin beneath is seen to be perforated by several little apertures, from which a little thin matter oozes. After a time these separate holes merge into one large ragged-looking opening, at the bottom of which will be seen a large slimy-looking slough. When this is exposed, the pain usually somewhat abates, thick matter is formed, and the slough is slowly and painfully separated, leaving a cavity of very irregular shape, having usually deeply undermined and jagged edges. After a time this hole is filled up, but it often leaves a permanent scar. The local mischief is usually productive of a considerable amount of fever and constitutional disturbance.

We must now consider the treatment of carbuncles. Sulphide of calcium is every bit as useful in carbuncles as it is in boils. The mode of administration should be that indicated when speaking of the latter

complaint. (*See* BOILS, p. 144.) The belladonna plaster and the liniment with poulticing should be employed as already directed. When there is severe inflammation and high fever, as indicated by the thermometer, it may be necessary to give aconite. A tea-spoonful of the mixture (Pr. 38, T. 1) should be given every ten minutes for the first hour, and subsequently hourly. It may, if necessary, be alternated with the sulphide of calcium: a dose of one one hour, and a dose of the other the next, and so on. The medicines are never to be mixed, and must not be given together. In the majority of cases we should prefer giving the sulphide of calcium only. When there is great prostration, the arsenic mixture (Pr. 40) may prove useful; but usually it will be found to be inferior to the sulphide of calcium. The external application of an extract of opium of the consistence of treacle is sometimes used to ease the pain. It is to be thickly smeared three or four times a day over and around the swelling. The extension of the carbuncle may sometimes be limited by tightly strapping it with strips of adhesive plaster applied concentrically from the border, inwards, around, and over the swelling. The plaster should be removed daily, and any discharge that may have exuded sponged away with warm water. The enlargement of a carbuncle may be considerably curtailed by early strapping.

It will be gathered from what we have said that in carbuncle the attendance of a doctor is desirable, and this is especially the case when the complaint makes its appearance on any part of the face or scalp.

Respecting the general treatment, it may be said that it should be essentially of a sustaining character. The food should be given in as digestible a form as possible. The patient should have plenty of strong beef tea, chicken or mutton broth, eggs, milk, and other articles of diet of a similar nature. In the majority of cases stimulants are required. Brandy and egg may be given with advantage, or brandy or sherry and milk.

CATALEPSY.—Catalepsy is one of the strangest diseases possible. It is of rare occurrence, and some very sceptical people have even gone so far as to deny its existence. That is all nonsense, for catalepsy is just as much a reality as gout or bronchitis.

A fit of catalepsy—for it is a paroxysmal disease—consists essentially in the sudden suspension of thought, feeling, and the power of moving. The patient remains in any position in which she—we say she, for it occurs mostly in women—happens to be at the moment of the seizure,

and will moreover retain any posture in which she may be placed during the continuance of the fit. For example, you may stretch out the arms to their full length, and there they remain stretched out without showing the slightest tendency to drop. It does not matter how absurd or inconvenient or apparently fatiguing the position may be, it is maintained until altered by someone, or until the fit is over. In these attacks there are no convulsions, but on the contrary the patient remains perfectly immobile. She is just like a waxen figure, or an inanimate statue, or a frozen corpse.

The following description of a case is nearly a hundred years old, but it presents a more graphic picture of the disease than any modern account with which we are acquainted:—

“In the latter end of last year (1781), I was desired to visit a young lady who for nine months had been afflicted with that singular disorder termed catalepsy. Although she was prepared for my visit, she was seized with the disorder as soon as my arrival was announced. She was employed in netting, and was passing the needle through the mesh, in which position she immediately became rigid, exhibiting in a very pleasing form a figure of death-like sleep, beyond the power of art to imitate or the imagination to conceive. Her forehead was serene, her features perfectly composed. The paleness of her colour, her breathing at a distance being also scarce perceptible, operated in rendering the similitude to marble more exact and striking. The positions of her fingers, hands, and arms were altered with difficulty, but they preserved every form of flexure they acquired; nor were the muscles of the neck exempted from this law, her head maintaining every situation in which the hand could place it, as firmly as her limbs. About half an hour after my arrival, the rigidity of her limbs and statue-like appearance being yet unaltered, she sang three plaintive songs in a tone of voice so elegantly expressive, and with such affecting modulation, as evidently pointed out how much the most powerful passion of the mind was concerned in the production of her disorder, as indeed her history confirmed. In a few minutes afterwards she sighed deeply, and the spasm in her limbs was immediately relaxed. She complained that she could not open her eyes, her hands grew cold, a general tremor followed; but in a few seconds, recovering entirely her recollection and powers of motion, she entered into a detail of her symptoms and a history of her complaint.” In this case we are told the fits occurred once or twice a day, and sometimes more frequently, but they never came on at night. They frequently occurred without warning, but were

sometimes ushered in by a fluttering at the pit of the stomach, or by a fixed pain at the top of the head. The onset was usually very sudden, and on one occasion she was seized whilst carrying a cup of tea to her mouth, and remained rigidly fixed in that position.

The most common cause of catalepsy is mental emotion. A young girl who was in the hospital recovering from typhoid fever was greatly frightened one night by the occurrence of a fire in an adjacent building. She was awoke by the blaze flashing in at the windows, and at once exclaimed that the Day of Judgment had come. She remained in an excited state all night, and the next morning grew gradually stiff like a corpse, whispering before she became insensible that she was dead. If her arm were raised, it remained extended in the position in which it was placed for several minutes, and then slowly fell. This strange condition gradually passed off in the course of the morning, and there was no return of it.

The subjects of catalepsy are usually young women, but it is occasionally met with in men. In one case the patient was a man sixty years of age. He was engaged in plastering, when suddenly he became insensible, and his limbs and body were rigidly fixed in the position in which he was attacked. The fit lasted twenty-two hours, and then recovery gradually took place. It is supposed to have been induced by much mental suffering, owing to the sudden death of his wife.

Catalepsy fits vary very much, not only in their frequency, but in their duration. Sometimes they are very short indeed, lasting only a few minutes. In one case, that of a young lady, they would sometimes come on when she was reading aloud. She would stop suddenly in the middle of a sentence, and a peculiar stiffness of the whole body would seize her, fixing the limbs immovably for several minutes. Then it would pass off, and the reading would be continued at the very word at which it had been interrupted, the patient being quite unconscious that anything had happened. But sometimes fits such as these may last for days and days together, and it seems not improbable that people may have been buried in this state in mistake for death.

Catalepsy is in many cases associated with other diseases, and it sometimes ends in epilepsy. Curiously enough, some cataleptics are able voluntarily to induce the fits at almost any time. It has been supposed that absence of mind is in reality a slight form of catalepsy. When a man is in a "brown study," or reverie, the eyes are fixed by a muscular action similar to that which occurs in the cataleptic, and not the eye only, for a limb or the whole body will remain in the same position

for many minutes, the senses themselves being in deep abstraction from surrounding objects.

Catalepsy is by no means a dangerous disease, for recovery almost uniformly takes place. The best remedy is bromide of potassium. Two or three of the tabloids (T. 18) should be dissolved in a wineglassful of water and given three times a day immediately after meals. The bromide of sodium tabloids (T. 19) are equally efficacious. The oxide of zinc pills (Pr. 66) will in some cases be found useful. The administration of strychnia is often attended with benefit, and is conveniently given with hypophosphite of lime in the form of Fellows' syrup—a tea-spoonful being taken in water three times a day. Several cases have been treated successfully with small doses of tincture of *Cannabis Indica*, the Indian hemp (T. 46). Only one of these drugs should be given at a time. It is very essential that the mind should be brought under proper discipline, and kept as far as possible from all causes calculated to promote emotional excitement.

CHILBLAINS AND CHAPPED HANDS.—A chilblain is a low form of inflammation of the skin, usually of the hands or feet, attended with itching, tingling, burning, and swelling of the part. It is chiefly a complaint of early life. Boys and girls at school are the chief sufferers. Men seldom suffer from them, but some women are subject to them all their lives. A tendency to chilblains often runs in families. They occur most frequently in people who have a weak circulation, as evinced by cold feet and hands, and occasional blueness of the lips and tips of the fingers during the winter months. Their appearance is generally ascribed to too suddenly warming the hands and feet after they have been thoroughly chilled. In some constitutions, however, they are very readily produced. A sudden change in the weather, a rapid thaw, or an east wind, may act as an exciting cause.

Chilblains appear most commonly on the hands, but sometimes on the feet, and more rarely on the lobe of the ear or the tip of the nose. Their course varies somewhat in different people. In some they itch very much, and this is a constant source of trouble, whilst in others this symptom is almost entirely absent. Sometimes they break very easily, but frequently enough they exhibit no such tendency.

Why do chilblains occur so frequently in school-girls? Simply because the mode of life adopted in many of our schools is eminently favourable to their production. Just talk the matter over with any school-girl you

may happen to know, and you will soon see that this is the case. In the first place, you will find that even in the middle of the winter she has to turn out at six in the morning. "All in the dark?" "Oh, yes," she says; "but we have a candle." "And there's no fire in the room?" "Oh, no, and sometimes it's so cold; once, just before the holidays, the water was frozen in the jug quite hard, and we had to break it." And what do you do then?" "When we're dressed we go down in the school-room, and practise for an hour." "Of course it's warmer there?" "Oh, no, it's very cold. Jane never lights the fire till past seven." "And what time do you get breakfast?" "Oh, not till eight o'clock; sometimes it's twenty minutes past." We have no hesitation in saying that very frequently this is prejudicial to the health of a young growing girl. Many a big strong fellow of six feet two would suffer under such treatment. We do not say anything about the early hours, provided the children get to bed in good time, and get a good night's rest. But we do object, and that very strongly, to their having no hot water to wash in. When they get downstairs they should find a good blazing fire in the school-room, and the first thing to be done should be to have a good hot breakfast. After that they may practise as much as you like, but they would not suffer from chilblains. We do not advocate "coddling" children; but there is a medium in everything.

Sufferers from chilblains should have a liberal diet, and a glass or two of wine added to the daily food will not do any harm. For grown-up people, a glass of rum and milk before getting up in the morning is a good thing. In the case of young people it is very important to see that they have plenty of good warm under-clothing. Flannels should be worn from head to foot, and we may be excused for saying that they should be changed with sufficient frequency. It is very necessary to protect the feet and hands from cold. There is nothing like having good roomy boots and good warm socks. People may make ill-natured remarks, and say something about "beetle-crushers" in connection with your feet, but never mind—wait till they get chilblains. Do not be afraid of wearing good big gloves lined with wool. Tight kid gloves are an abomination. They may be very pretty to look at, and no one can help admiring a nice little hand, but they prevent the free circulation of the blood, and make the fingers horribly cold. There is another thing; do not wear elastic bracelets, and do not wear tight garters. If you want to get rid of your chilblains, you must take plenty of outdoor exercise. Do not stay in day after day because it is wet. It is nearly always fine some time in the day. If it shows no signs of holding

up, you had better wrap up well and go out for a good brisk walk all the same, only mind you change your things directly you come in. Never sit down for a minute in your wet boots. The skipping-rope is an excellent institution. If you have chilblains, do not be in a hurry to give it up; you are to take it medicinally, and it will do you more good than cod-liver oil.

And what about medicine? There are a good many applications which may be advantageously used for chilblains, especially before they are broken. One of the best is iodine ointment. Send to the chemist for some, and rub it well over the chilbains—always supposing the skin to be unbroken—two or three times a day. You may wear an old glove over it if you like, only it must not be tight. This is a most excellent mode of treatment, and will nearly always effect a cure in two or three days.

There is another good method of treating chilblains which we can recommend. The only objection to it is that the application takes a little time and trouble to prepare. It is admirably adapted for people who habitually suffer from chilblains. It is as follows:—Make a strong tincture of capsicum-pods (chillies), by steeping them for several days in a warm place in twice their weight of rectified spirits of wine. Dissolve gum-arabic in water to about the consistency of treacle. Add to this an equal quantity of the tincture, stirring it together with a small brush, or a large camel's-hair pencil, until they are well incorporated. The mixture will be cloudy and opaque. Then take sheets of silk or tissue-paper, give them with the brush a coat of the mixture, let them dry, and then give another. Let that dry, and if the surface is shining there is enough of the peppered gum, if not, give a third coat. This paper, applied in the same way as court-plaster to chilblains that are not broken, speedily relieves the itching and the pain. It acts like a charm, and effects a rapid cure. We may mention incidentally that the same method of treatment proves very successful in burns that are not blistered, and in discoloured bruises.

A solution of sulphurous acid, either applied in the liquid form, or used as a fumigation, by means of a spray apparatus or scent-diffuser, is very useful for chilblains. A good wash for the hands when affected with chilblains is sulphurous acid three parts, glycerine one part, and water one part.

When chilblains are broken it is a good plan to poultice them. The application of glycerine of starch often gives relief. A coating of collodion will serve to protect them from injury.

In connection with chilblains we will say a word on the subject of chapped hands. This affection consists of slight inflammation of the skin of the part, which subsequently becomes cracked. It occurs most frequently in frosty weather, when it sometimes gives rise to much pain and inconvenience.

The treatment is, on the whole, similar to that adopted in the case of chilblains. Glycerine, glycerine of starch, or one part of glycerine mixed with two parts of eau de Cologne, will form an excellent application. Any of these will remove the stinging, burning sensation, and make the parts soft and supple. When undiluted glycerine is applied to a delicate skin it is apt to produce smarting and irritation. Rose-water may, if preferred, be used in place of the eau de Cologne.

Collodion is sometimes applied to chapped hands and chapped nipples, but chapped hands are better treated with glycerine of starch, or a mixture of glycerine and eau de Cologne.

CHOLERA.—True Asiatic cholera, cholera morbus, or epidemic cholera, is a disease which is always more or less present in certain parts of British India.

In certain years, aided by the presence of dirt and filth and the absence of sanitary precautions, it assumes a virulent type, and then spreads in the form of an epidemic all over the world.

The presence of this disease in an epidemic form has long been recognised, and we learn from the description given by Sanskrit authors that cholera existed in India as early as 400 B.C.

In the earlier epidemics, when travellers were few and far between, and facilities for communication were very different from what they are in the present day, the march of cholera was slow, and it took many years to spread over Europe from its Eastern home. Now, thanks to the opening up of long lines of railway, to the introduction of express trains, and fast steamers on the rivers of the East, cholera comes to us with great strides, and is at our doors almost before we have time to realise that we are threatened with its invasion.

In the great epidemic of 1892 cholera was reported at Kashmir on May 8th, reached Askabad on June 4th, Buku on June 6th, Astrakan at the mouth of the Volga on June 30th, Moscow on August 5th, and Petersburg on August 17th. A few days later Hamburg, Paris, Havre, and almost every town and city of Europe suffered more or less. It attacked us through our seaports, and crossed the Atlantic to America.

Quarantine undoubtedly did something to delay its march; but, probably, not much, as the period of incubation of the disease may be as long in some cases as fifteen days, and although quarantine may be efficacious in filtering off some of the more severe attacks, many people in whom the disease is not fully developed must of necessity escape.

Cholera is now known to be due to the presence of a germ or bacillus. It is not an air-borne disease, but is carried by dirty people and in dirty clothing along the lines of human intercourse.

It is not catching in the ordinary sense of the word—not infectious, that is to say, in the sense in which measles and scarlet fever are communicated—but it has a special infectiousness of its own. The germs are contained in the excreta of the patient, and if the bacillus is placed under favourable conditions, that is to say, in situations where the sanitary conditions are bad, it is propagated with astounding rapidity.

The smallest particle of cholera excrement discharged into a river or other source of water supply, will infect it for miles; and if this water is supplied unpurified for drinking purposes, the outbreak of an attack of cholera is absolutely certain. We had a curious and painfully instructive example of this in London in the great cholera epidemic of 1866. It so happened that a water company which supplies the east end of London, in consequence of some alteration in their filtering apparatus, supplied its customers with unfiltered or very imperfectly filtered water drawn from the River Lea. Just about this time a patient suffering from incipient cholera arrived at Southampton and went home to a cottage, the drains of which opened into the upper part of the river. The result was that the water was contaminated and cholera germs were laid on and supplied to every household. In a very short time 16,000 people were attacked, and the mortality was appalling. It was an "accident"; no one was responsible, and no one was to blame, but it is to be hoped that, with our increased knowledge of the causation of the disease, such a catastrophe will never occur again.

In the Hamburg epidemic of 1892 it was clearly shown that the Elbe had become contaminated, and that, as the authorities had been too indolent and too apathetic to institute a proper and efficient system of water purification and filtration, the poisonous fluid was distributed all over the city with disastrous effect. It was found, too, that many of the river-side population had no water supply at all, and simply took their drinking-water, pregnant with cholera-germs, direct from the river itself.

We do not catch cholera, but we eat it and drink it.

It is not only by water that cholera is propagated ; but certain articles of food are responsible for its introduction into the system. Epidemics have on various occasions been traced to the use of poisoned milk. The milk itself as drawn from the cow has been pure enough, but it has been diluted and adulterated with water contaminated with cholera bacillus. Even when the milk has not been intentionally adulterated, it has sometimes been contaminated by washing out the cans with impure water. Attacks of cholera have been traced to the use of tinned foods, and it seems probable that in these cases the food has in the process of preservation become accidentally contaminated, possibly from having been manipulated by people suffering from incipient cholera, or from having been stored in cholera-infected houses.

Cholera is essentially a filth-disease. In the dirty villages and towns of Russia, where personal and public sanitation is reduced to a minimum, the disease once introduced spreads with startling rapidity, striking down the inhabitants wholesale. In England, fortunately for us, sanitation has of late years made giant strides, but there is still much to be done, for in courts and alleys in our great cities, and in the cottages of the poor in the country, comparatively little has as yet been achieved.

In a densely-populated country such as ours it behoves us to take united action to ward off the invader, for a nidus or nucleus of dirt may be the means of spreading the disease far and wide. It is useless for the rich and well-to-do to try and protect themselves unless they also aid their poorer brethren who are too often not in a position to protect themselves. A house may be placed in the best possible sanitary condition at the expenditure of many thousand pounds, but if it is surrounded by dirty mews, foul-smelling cowsheds, or pigsties, there is no guarantee of safety for the inhabitants. In many of our "best" houses in London the condition of the servants' quarters is absolutely disgraceful. The master or mistress is disinclined to interfere, or to take action in the matter, and the result is that at night when the house is closed and the family are asleep, the house is pervaded with foul smelling gases emanating from leaky drains and imperfectly trapped pipes.

Anything which tends to depress the vital powers predisposes to an attack of cholera. A person well-fed and in robust health will during the prevalence of an epidemic often escape an attack, whilst others less favourably situated speedily succumb.

Nothing is more likely to weaken the system than fright or panic. Dwelling on the disease and its possible consequences is a fatal

mistake. The requisite precautions should be taken in time and not left till the last moment. There is nothing really to fear even in the most virulent epidemic if the requisite precautions have been taken.

Cholera attacks men and women indiscriminately, and people of all ages suffer. Both the strong and the weak fall victims to its deadly power, and it has been found in the army that the most robust are often the first to be stricken down. The previous habits of life exert but little influence, although in some epidemics it has been thought that the intemperate were more subject to attacks than the abstemious. Occupation produces no special liability, although those which expose the individual to unhealthy influences may increase the risk. In the army the privates always suffer more than the officers.

The limitation of the area of the disease is often very abrupt. In some instances it has been strictly confined to one side of a street, camp, or town.

One attack affords no protection from another.

The disease often sets in with purging and vomiting, but in many cases the bowels are relaxed for some hours or days before the real attack begins. The bowels are opened three or four times in the twenty-four hours, perhaps with a little griping, and the motions are watery or semi-fluid. There may, in addition, be a little feeling of exhaustion.

We have no intention of describing an attack of cholera in full, but shall content ourselves with a little more than an enumeration of the leading symptoms. The attack begins with violent purging, usually painless, but sometimes attended with griping. At first the motions consist of the contents of the bowel, mixed with much fluid, but subsequently they assume the appearance of water in which rice has been boiled. They are shot out with considerable force, often in a full stream, and the quantity may be so great as to fill an ordinary-sized stool-pan in two or three hours. The evacuations are frequently repeated, the patient becomes exhausted, and is glad to remain in bed. With purging is generally combined vomiting, the fluid, which is clear and watery, being ejected with considerable force, often in quantities of a pint or more. Cramps in the limbs set in, the face becomes shrunk, the pulse feeble, and the patient passes into a state of collapse. In this condition there is the utmost depression possible with a capability of recovery. The surface is deadly cold, the tongue icy to the touch, the very breath a cold air stream, and the temperature in the mouth often as low as 80° . The patient may die in a few hours, or he may remain in this condition for a day, or even two days, and then

recover. When reaction sets in recovery is generally very rapid. It is said that a woman has been standing at her door on Wednesday, who on Monday was in perfect collapse.

The mortality in cholera is high. In some epidemics it is from twenty to thirty per cent., in others from seventy to eighty. It is usually higher at the beginning of an epidemic than towards its termination.

There is usually no difficulty in recognising a case of cholera. The purging, vomiting, anxious countenance, cramps, and the quick advent of collapse, indicate only too surely the nature of the complaint. The only other disease with which it is at all likely to be confounded is choleraic diarrhoea, or, as it is sometimes called "cholerine." Should there be any doubt as to whether it is true cholera or only choleraic diarrhoea, act on the supposition that it is the more serious disease.

How are we to avoid cholera? The answer is, by scrupulous attention to cleanliness—cleanliness of person, of clothing, of dwelling, of air, and food, and water. On the first indication of an outbreak of cholera, not in the neighbourhood, but anywhere in the country, a regular crusade of cleanliness should be instituted.

The house should be turned out from top to bottom, and there should be a "spring-cleaning" on a gigantic scale. Old furniture, carpets, blinds, flooring, woodwork, and everything in the house should be submitted to the cleansing process. Soap and water should be used freely, and various antiseptics, to be presently described, should be brought into requisition. The younger members of the family should be set to work to paint and varnish, and every particle of woodwork should receive a coat of some kind.

The process must not be confined to the living-rooms, but the cellars and outhouses should come in for their share of attention. Walls and fences should be whitewashed, and the whole place should be thoroughly scavenged. In country districts the soil about the house, if unflagged, often becomes sodden with dirt and filth—the accumulation of years. This should be dug up and, if necessary, removed, the subjacent layers of earth being mixed largely by layer with sulphate of iron, which is commonly sold under the name of "green copperas." It is very cheap, and should be bought by the hundredweight. It is generally supplied in the form of rough crystals, and these, if placed in the oven, soon crumble to powder and make an excellent antiseptic material. It must be remembered that the disinfectant must be used freely, or it will be of little or no use. It cannot be reasonably

expected that a pound or two of sulphate of iron will purify tons of foul and fetid soil. After the application of the copperas it is a good plan to make a fire of all the waste wood and leaves that can be collected, and in this destroy the garbage and useless material which tends to accumulate in and about the house. The ashes can be spread over the earth, and the whole covered with a layer of sand or gravel.

The source of the water supply should be thoroughly investigated, and cisterns, if such exist, should be first emptied and then thoroughly cleaned out. In large towns the cistern is often hidden away under the roof, or in some place quite inaccessible to the ordinary householder, who would, probably, be considerably surprised and shocked if he could investigate its contents. Drains and water-closets should be thoroughly flushed with carbolic acid or Jeyes' Fluid, and all pipes should be disconnected from the drains.

In the matter of personal hygiene much may be done to maintain a vigorous condition of health. A bath should be taken every morning—cold or tepid, according to the season. The under-linen should be changed frequently, and the vest worn during the day should never be worn at night. Dresses and coats should be thoroughly brushed daily, and when not in use should not be shut up in a drawer or wardrobe, but hung up in a current of fresh air. Windows should be opened in the morning, so that the bedrooms, and the bedding especially, may be rendered pure and sweet.

The food should be ample in quantity and of good quality. The dietary should comprise a fair allowance of meat, and anything approaching "vegetarianism" should be put down with a firm hand. Food should be taken at meal times, and at meal times only. Tinned meats, over-ripe fruit, and game which has become "high" should be regarded with suspicion. Alcohol in moderate quantities should be taken with meals, but "hard" beer and sour wine should be avoided.

Exercise in the open air should be taken at least daily, and the beneficial effects of amusement and pleasant occupation should not be overlooked. The bowels should be kept in order by the occasional use of brown bread, oatmeal, or a little fresh ripe fruit, but strong purgatives should be avoided. These precautionary measures should be adopted by everyone absolutely without exception, for a dirty house or a dirty individual during the presence of an epidemic becomes a source of danger to the rest of the community.

The bacillus of cholera is propagated only under circumstances favourable to its growth. If the circumstances are unfavourable it will

be unable to germinate, just like a seed planted on unsuitable soil. If a man is in good health he may possibly take a small dose of cholera poison in his inside and not catch the disease. The cholera germs need an alkaline medium for their propagation. If a man is in robust health the acidity of his gastric juice will kill the cholera germ. If he is in feeble health or pulled down by alcoholic excesses the germ gets the best of it, as there is not sufficient resistive power in his gastric juices. This affords a ready explanation of the use of orange juice and citric acid in warding off the effects of the cholera germs. But it is better to avoid taking them at all.

When cholera is prevalent any looseness of the bowels should receive immediate attention. It may be merely a temporary disturbance, or it may be the commencement of something more serious. At all events, it should be dealt with promptly. Camphor, laudanum, and chlorodyne are useful remedies always at hand. For an incipient attack, however, we should place more reliance on the "Anti-Cholera" tabloids, which contain, in addition to a small dose of opium, various aromatics which exert a beneficial effect in controlling spasm of the intestines.

The following are the dates of the epidemics which have occurred during the present century:—1827, 1842, 1848-9, 1853-4, 1865-6, 1892-3. Between 1866 and 1892 a few sporadic cases occurred, but they did not assume an epidemic form.

As antiseptic solutions are largely employed when epidemics of cholera are reported, it is most desirable to have one which is thoroughly efficacious. Many of the so-called antiseptics possess antiseptic properties in a very mild degree. The best and most perfect of all antiseptics is perchloride of mercury or corrosive sublimate. Its great disadvantage is that it is a very active poison, and cannot be left about with safety. The following is the composition of the antiseptic solution recommended by the Local Government Board for use by sanitary authorities and medical officers of health. It is made by mixing half an ounce of corrosive sublimate, one fluid ounce of hydrochloric acid, and five grains of commercial aniline blue in three gallons (a bucketful) of common water. It is directed that all articles which have been soaked in it should be set to soak in water for some hours before being sent to the wash. Now there are certain objections to the use of the solution. In the first place, as already stated, it is very poisonous, and no chemist would sell half an ounce of corrosive sublimate without an order from a doctor. Then, again, the term "commercial aniline blue" is a vague one, for there are at least half a dozen different substances sold under this name.

Some of these blues when mixed with hydrochloric acid make a permanent dye, and no amount of washing or rinsing, or even boiling, will get the colour out. Moreover, the antiseptic solution cannot be put in a bath or other metallic vessel, for it will soon make a hole in it. A wooden bucket is not very safe, for the solution soaks into the wood, and if the bucket were subsequently used for watering horses or cattle, it might produce poisonous effects. Still, in spite of all these disadvantages, the solution is a most valuable one as a disinfectant, but the greatest care must be taken in using it.

A London firm of chemists have recently issued "soloids" of compressed corrosive sublimate, by means of which an extemporaneous antiseptic solution may be made at a moment's notice and without difficulty. One tabloid makes a pint of the solution, and twenty-four of them a bucketful. They are coloured blue, but the blue is not a dye, and sheets, pocket-handkerchiefs, and other articles, may be immersed in the solution with perfect safety. It may be used for washing floors and furniture, and for flushing out water-closets and drains.

We will now give, in a concise form, some simple and practical directions as to the best way of warding off cholera. It is of no use leaving these precautions till the disease is at your very doors. They take some time to carry out efficiently, especially if the work has to be done on a large scale. They should be commenced when there is the slightest rumour of cholera. Remember that the sanitary arrangements which will ward off cholera will also keep away typhoid fever, diphtheria, summer diarrhoea, and a host of other unpleasant visitations. It is essential that the well-to-do should take the initiative in these matters, for the poor cannot help themselves to any great extent, much less organise a system of defence.

How to Avoid Cholera.—1. Order from your bookseller a supply of the leaflets, entitled, "How to avoid Cholera," and distribute them broadcast among your neighbours. Also get a supply of the cards, called "First Aid in Cholera," and have these suspended in public places, such as railway stations, police stations, shops, and so on. These leaflets and cards are supplied at a very moderate rate, and cost very little.

2. Get a chemist to supply to the poor, gratis, the Local Government Board disinfecting solution, or, better still, the soloids already mentioned. The cost of this is very little, and any difficulty as to funds may be met by a small local subscription.

3. Have your house cleaned from top to bottom, and encourage other

people to do the same. Distribute buckets of lime-wash, and lend out brushes, so that the poor may whitewash and purify their walls and ceilings, and the fences round their houses.

4. Scavenge the earth about the house. Dig it well up, mix the soil with green copperas, and burn all filth and garbage.

5. Look to all water-closets, privies, cesspools, dust-bins, yards, stables, pigsties, and slaughter-houses. Manure-heaps are a constant source of danger. Wage war actively against dirt in all forms, for cholera is a dirty disease.

6. Look to your drains and water supply. See that your pipes are disconnected and properly ventilated. Have your cisterns cleaned out, and flush your closets with the disinfecting solution and plenty of water every day.

7. Be careful in your diet. Maintain your bodily health by good wholesome food, and avoid taking stimulants to excess.

8. Take plenty of out-door exercise in the fresh air, and see that your family follow your example.

Having taken these precautions, rest assured that you are safe. Do not read cholera literature, and, above all, do not get in a panic.

In addition to following these directions, keep your bowels moderately open, but avoid purging and all strong purgative medicines. Eat an orange three or four times a day, or if they are not available take a couple of citric acid tabloids in a little water after every meal.

It has recently been stated that wearing an "electrical belt" will ward off cholera. There is no truth in the statement.

Many people think that they can keep off infectious diseases by putting eucalyptus on their pocket-handkerchiefs or carrying a piece of camphor in the pocket. This is pure superstition, and is allied to the old belief in charms.

If you live in an out-of-the-way place, where medicines are not readily obtained, get a little medicine case fitted up with the following drugs:—

1. Citric acid tabloids.
2. Camphor tabloids.
3. Chlorodyne.
4. Anti-cholera tabloids.
5. Permanganate of potash tabloids.

These cases, ready filled, are supplied without a prescription, and may be obtained through any chemist for a few shillings. The

permanganate of potash tabloids are used for making a disinfecting solution. If you get the soloids for making the disinfecting solution do not put them in your case, as they are poisonous, and might possibly be mistaken for tabloids. The permanganate of potash tabloids are not poisonous.

The slight diarrhœa of early cholera is usually so painless that it is very apt to be overlooked. It is a standing order in the case of soldiers in India, that if any man goes twice to the closet in one day he should report himself, and non-commissioned officers are usually stationed at the latrines to see that this salutary order is carried out. In England and Germany a house-to-house visitation is usually established during the prevalence of an epidemic.

There are certain precautions to be observed by those in attendance on the sick.

Nurses and others should wear caps and long white aprons extending from the neck down to the feet.

The patient should be strictly isolated from the first, and should see no one but those in actual attendance on him. The nurses, too, must be isolated as much as possible. Every discharge should be at once thoroughly disinfected by being mixed with a considerable quantity of strong carbolic acid, perchloride of iron, or the antiseptic solution. In large towns the stools must of necessity be emptied down the water-closets; but in the country they should, after thorough disinfection, be buried deeply at a distance from the house, and especially from the source of water supply. The greatest care must be taken to thoroughly steep all linen, such as sheets, night-gowns, and pocket-handkerchiefs in the antiseptic solution, and then rinsing for some hours before sending to the wash. An arrangement must be made with the laundress to have those things washed by themselves. Everyone who has been in the sick-room should, before going to meals, carefully wash his hands in hot water, to which one of the soloids of corrosive sublimate has been added. If corrosive sublimate cannot be obtained, permanganate of potash, carbolic acid, Jeyes' fluid, or even Sanitas may be employed. The use of the nail-brush is essential.

We must now consider the question of treatment. The first thing to be done in a case of cholera, or even suspected cholera, is to send for the doctor, saying what is the matter. If, as is sometimes the case in the country, some hours must elapse before the arrival of medical aid, you must begin treatment yourself. Almost every minute is of importance, and a few hours' delay may make all the difference between

life and death. The drug on which you must rely is camphor. You must give one of the camphor tabloids, or the strong solution, the essence of camphor, in four-drop doses, every ten minutes for an hour, or until there is some improvement, and hourly afterwards. It is best given in about a table-spoonful of milk. The great thing with this remedy is to give it early, to give it frequently, and to give it in sufficiently large doses. It checks the vomiting and diarrhoea almost immediately, wards off the cramp, and restores warmth to the extremities. In addition to the camphor, put a table-spoonful of brandy in a tumblerful of iced milk, and let the patient sip this slowly.

Should the patient not recover in a couple of hours, give one of the anti-cholera tabloids, or a dose of chlorodyne. By this time it is to be trusted that medical aid will have arrived. If not, you must feel your way cautiously, and give one of the anti-cholera tabloids or a dose of chlorodyne every three or four hours. If the drugs are rejected by vomiting, they may be mixed with a little brandy and water—about four table-spoonfuls in all—and injected into the bowel. Small quantities of hot brandy and water by the mouth are useful, but if there is much nausea not more than a table-spoonful must be given at a time, or it will not be retained. Hot fomentations and hot linseed-meal poultices to the abdomen are comforting to the patient, and hot-water bottles, or hot bricks covered with flannel, may be applied to the feet and legs. Plenty of fresh air is essential, and the room should not be kept too hot. If the patient is very thirsty, he may be given sips of ice-cold water mixed with a little lemon juice, lime juice, orange juice, or even raspberry vinegar. The tabloids of citric acid dissolved in water answer the purpose admirably.

Before concluding this article, it may be desirable to say a few words on the method of choleraic vaccination, or vaccination against cholera, discovered and advocated by Dr. W. M. Haffkine, and demonstrated before the Royal College of Physicians of London in the early part of the year 1893. The microbe, to which the cause of Asiatic cholera is often attributed, is the comma-bacillus of Koch. The reason that the disease is attributed to this microbe is that it is constantly found in the secretions of the intestines of cholera patients, and is never found in the course of any other disease or in healthy individuals. This discovery was first made in Egypt, and was subsequently verified in Syria and India, in the epidemic of Spain, in that of France, Italy, and Mas-sowah, and in the last epidemics of Russia, Germany, and Paris. Dr. Haffkine has discovered a method of enfeebling this virus by passing it

through a series of cultivations at a high temperature, freely exposed to the air. This enfeebled virus may be injected under the skin of a healthy man without danger, and renders him cholera-proof. Surgeon-Captain C. C. Manifold, of the Indian Medical Service, who was the first patient injected by Dr. Haffkine within the limits of the Indian Empire, speaks highly of the treatment, and says that "the discomfort and pain caused by the inoculations were so trivial, that fear of them should never deter anyone from being vaccinated." It is quite a question whether officers in the army, and others who are compelled to go to India, should not, as a precautionary measure, undergo the treatment. It can be carried out in England without difficulty.

COLD.—Catching cold is one of the most general and most prolific causes of disease. When we consider that such affections as bronchitis, pneumonia, consumption, quinsy, pleurisy, rheumatism, neuralgia, tooth-ache, and a host of others, may have their origin in a cold, we must acknowledge that it is not easy to overrate its importance.

We will in the first place consider what are the causes of cold, and under what circumstances it is likely to be produced. Insufficient clothing is undoubtedly a very frequent cause. The custom of leaving uncovered the thighs and legs of children, and the neck, chest, and arms of young girls is a bad one. The importance of protecting these parts is recognised in the case of adults, but, curiously enough, in those of tender years they are unhesitatingly exposed to the inclemency of the season. The exposure may be only occasional, as when ladies wear low-bodied dresses at balls and evening parties, but it is none the less hurtful on that account. There can be no doubt that many cases of consumption have their origin in the custom of using insufficient clothing at evening entertainments. Evening dress is usually very much lighter than that worn during the day, and it often affords very little protection against cold and draught. Moreover, the heated impure air in places of public assembly promotes perspiration, and thus renders the body more susceptible to cold on going into the cooler outer air. After dancing, especially, one should be very careful in passing along cool corridors or passages. The great thing is to keep moving, and to cover the shoulders with an opera-cloak or cloud, or something of the kind. Many people have caught a severe cold while waiting for the carriage, or in walking home in their thin boots and upper clothing. Men naturally suffer less in this way than do women. Neglecting to wear flannels in the winter

is a prolific source of cold. Those who are at all weak on the chest should wear flannels night and day, summer and winter. The flannels should be changed at least once a week, and the same flannel should never be worn night and day. This is a point which is constantly neglected, even by those who in other respects are scrupulously clean in their habits.

The origin of a cold may in many instances be traced to getting wet through. Clothes when dry are imperfect conductors of heat, and retain the natural warmth of the body. When they are wet, evaporation takes place, much heat is consumed in the process, and the body becomes chilled. If, however, the heat thus lost is continually renewed by exercise, a cold is not taken. If you get wet through, it is better to keep in motion till you have an opportunity of changing your wet things than to stand still. It is better for you to walk home than to ride. If you keep on the move, probably no harm will come of your wetting. Sitting on a wet seat, or on the damp grass, often gives rise to cold. The heat of the body passes off rapidly, and there is no increased production to compensate for it. Another very common cause of cold is sitting in a draught. It is pleasant enough to sit in a current of cool air when the body is heated by exercise, but it is a dangerous practice, and a luxury that should never be indulged in. Even when there is no draught, cold air may be the starting-point of a cold. Many people have a great dislike to "begin fires," and leave it till quite late in the autumn, no matter how cold it may be, before they will consent to have one lighted. This, to say the least of it, is false economy. It is curious how frequently, in making formal morning calls, one is shown into a large, cold, damp drawing-room. The fact is, the family habitually live in the dining- or breakfast-room, and seldom have a fire in the other apartments, unless they expect visitors. A call made under these circumstances often results in a cold; and if the slightest feeling of chilliness is experienced, the sooner a move is made the better. Going up to bed in a very cold room may lay the foundation of all kinds of mischief. The only thing is to undress as fast as you can, and jump into bed. Passing rapidly through the air, as when you are riding in an open or partially opened carriage, or when sitting in a train next to the window, may give rise to cold. All danger may be usually avoided by putting on your overcoat, or covering yourself up with your rugs.

Nothing can be more prejudicial to a person's bodily welfare than sleeping in a damp bed. The unsuspecting sleeper not only parts with the heat of his body in drying the damp sheets, but does so at a time

when his vital functions are at their lowest ebb. A thoughtful hostess will always see that her guest's sheets are properly aired. It may seem a small matter, but its neglect has cost many a man his life.

Prolonged bathing often gives rise to cold. In a healthy person the chill which results from the first plunge is at once followed by a reaction, which is salutary. In a man with a sound heart and good lungs, this reaction is maintained for some time, but in people of feeble constitution it is transitory. Directly you begin to feel cold and chilly in the water it is time to come out. Have a rub down with a good rough towel, put on your flannels, and run about till you feel warm, and then dress as quickly as you can. The practice of idling about on the bank in a state of nudity, either before or after bathing, is very dangerous. Cold bathing is the best tonic in the world, especially for young people, but if you remain in the water after you feel chilly you are almost sure to catch cold.

A general state of debility powerfully predisposes to the occurrence of cold. A person who is constitutionally weak catches cold from an exposure that would prove innocuous in the case of a strong, healthy man. The very young, the very old, the anæmic, the cachectic, the convalescent, and the licentious, are all more prone to catch cold than others. Whatever lowers the general tone of the system predisposes to the occurrence of this, the commonest of all disorders. Drunkards suffer greatly from colds and their consequences. Many people when exposed to cold, take wine or brandy, or spirit in some form or other, with the view of keeping out the cold. This is an injudicious measure, for as soon as the primary stimulating action is over, there is a reaction, with increased depression, and the person is more than ever likely to suffer from exposure. It has been shown experimentally that alcohol depresses the temperature of the body, and so, far from keeping out cold, it lets it in. There is no objection to taking a moderate allowance of alcohol when the exposure is over, for the stimulating effect may be beneficial, and by the time the reaction sets in, the patient will have changed his things, and will be warm and dry, and not likely to suffer in any way. What it comes to is this, that if you have to take a long walk in the rain, you should not stop half way to have a glass of grog, but there is no objection to your having something to drink when you arrive at your destination. Puddlers, and other workers in iron-furnaces, find that they can work better, and that they suffer less from colds, if they dispense entirely with alcohol. The Arctic voyager knows, too, that he can withstand the rigours of the climate better without his grog than with it.

A cold is called in scientific language a catarrh. It consists essentially of inflammation of the mucous membrane of some portion of the air-passages. When it is confined to the mucous membrane of the nose, it is spoken of as a cold in the head. When it is attended with much watery discharge from the nose, the complaint is called "coryza," and when with much pain over the forehead "gravedo." If the disorder should extend into the lungs, the patient is said to have a "cold on his chest," or from one of its most prominent symptoms, "a cough," or in other words, "a slight attack of bronchitis." The inflammation often enough travels from one part of the mucous membrane to another. Beginning, for example, in the nose, it gradually creeps down into the windpipe and lungs. Sometimes it passes from the throat up towards the ear, and produces deafness, or down the gullet to the stomach, causing qualmish and other uneasy sensations, and loss of appetite.

For the common ordinary domestic cold in the head nothing is more useful than the inhalation from the hand or pocket handkerchief of a few drops of pure terebene. It is essential to ask for pure terebene, or you may be supplied with a substance which is only fit for disinfecting purposes. Pinol is another good remedy, and should be used in the same way. There is a capital little apparatus known as the Pinol-Eucalyptic Dry Inhaler. It is a simple glass tube filled tightly with absorbent pine wool. It is contained in a case furnished with little bottles of pinol and eucalyptia. When required for use, one or two drops of either of these substances should be dropped in at the open end of the tube, which is then carried in the mouth like a cigar. This simple little apparatus costs only 1s. 6d., but it is efficacious.

Medicinally, the best treatment for a cold is aconite, and the earlier it is given the better. A tea-spoonful of the aconite mixture (Pr. 38, T. 1), should be given every hour or two hours, according to the severity of the symptoms. If there is not much fever, a still smaller dose may be taken. The patient had better go to bed and keep quiet; he should not take much food, but may drink freely of water if thirsty. This treatment may be continued for from six to twelve hours, or even longer. If the skin becomes moist the other symptoms usually quickly disappear, and a few more doses of the medicine will effect a cure. This treatment is very simple, and is usually successful. It is especially useful at the beginning of a cold, and is, in fact applicable to the commencement of any acute illness.

If a person finds himself unavoidably exposed to cold-producing causes, he may often prevent any unpleasant consequences by the use of

aconite. As there is as yet no fever to subdue, very small doses will suffice. After exposure to cold, and before the appearance of any symptoms, a few doses of the same medicine may serve to ward off an attack. The great thing is to have your aconite tabloids handy; if you have to waste an hour or two sending for them, the opportunity for their use may be lost.

When the patient has caught cold and is suffering from persistent shivering, camphor is the best remedy. From three to five drops of the essence may be given every quarter of an hour on sugar, or the camphor tabloids may be used. As soon as reaction takes place, and warmth is restored, the camphor should be discontinued, and aconite substituted.

When symptoms of inflammation of any special organ have made their appearance, the drug indicated for this complication may be given in alternation with aconite. Thus phosphorus may be given for pneumonia, belladonna for congestion and inflammation of the brain or throat, bryony for rheumatism or lumbago, and so on. As soon as the symptom indicating aconite has disappeared or become subordinate, the administration of that drug may be suspended.

When the cold has settled on the chest, bryony (Pr. 49) is an admirable remedy. It is indicated when there are heat, pains, and soreness behind the breast-bone, and an irritative, shaking cough with scanty expectoration. This kind of cold often occurs in elderly people at the beginning and end of the winter, in conjunction with stuffiness of the nose, running from the eyes, and derangement of the stomach. Bryony may follow aconite, or may be given alone.

Nux vomica (Pr. 44) is useful for a stuffy cold, and for violent coughs with little or no expectoration. *Ipecacuanha* (Pr. 50) is of value where there is much sneezing.

There are other remedies, which are useful when aconite has not been employed, or the more acute symptoms have passed away. Thus small doses of arsenic (Pr. 40) succeed admirably in some cases. A two-ounce dose of the iodide of potassium mixture (Pr. 32), taken every night at bed-time for three or four nights, will often cure a cold in the head, especially when there is much running from the eyes and nose. This is an excellent remedy for deafness arising from cold. It does very little good when the cold has settled on the chest. Inhalations of iodine often do good in coryza. A table-spoonful of the tincture of iodine should be put in a jug of boiling water, and the vapour inhaled. Eight or ten chlorate of potash lozenges a day will sometimes arrest a cold; but this is not one of our best remedies.

“Anti-Catarrhal Smelling Salts,” sold under various names, have a popular reputation as remedies for cold in the head. The following is a useful formula:—Carbolic acid, one drachm; iodine, one drachm; powdered wood charcoal, half an ounce. Mix the carbolic acid with half the charcoal and the iodine with the other half. Mix them thoroughly together, and label it No. I. Next, take an ounce of camphor, an ounce of carbonate of ammonia, and half an ounce of wood charcoal, and mix them, calling this No. II. Add Nos. I. and II., mixing them lightly, and drop on twenty drops of oil of lavender and a sufficient quantity of compound tincture of benzoin to make a thick paste. Keep the salts in a wide-mouthed bottle and inhale through the nose frequently.

Another good remedy for acute coryza is:—Carbolic acid, one drachm; strong solution of ammonia, one drachm; distilled water, two drachms; and rectified spirit, three drachms. Of this mixture a few drops should be sprinkled on a pocket-handkerchief and inhaled every two or three hours.

A cold in the head may often be speedily cured by the use of a snuff made as follows:—

Take of Acacia powder, two drachms,
Subnitrate of bismuth, six drachms. Mix.

Of this powder, from a quarter to a half may be taken as snuff in the course of twenty-four hours. Its employment should be commenced as soon as the symptoms of coryza show themselves, and it should be used frequently at first, so as to keep the interior of the nostrils constantly well-coated. Each time the nose is blown, another pinch should be taken. It may be taken in the ordinary way, from between the thumb and forefinger; but a much more efficacious and less wasteful method is to use a small gutter of paper or a “snuff-spoon,” placing it just within the nostrils, and sniffing up forcibly, so as to carry it well within. Some of the powder finds its way into the throat, and may do good if there is any catarrh there. The snuff causes scarcely any perceptible sensation; a slight smarting may occur if the mucous membrane is much irritated and inflamed, but it rapidly disappears. After a few sniffs of the powder, a perceptible amelioration of the symptoms ensues, and in the course of a few hours, the powder being inhaled from time to time, all the symptoms will have disappeared.

Another good snuff for chronic coryza contains:—Indigo, half a grain; carbolic acid, two grains; powdered camphor, two grains; hydrastis canadensis, five grains; and common salt, a drachm. It may be used freely.

